THE

CHICAGO MEDICAL

JOURNAL & EXAMINER.

VOL. XLV.—DECEMBER, 1882.—NO. 6.

Original Communications.

ARTICLE I.

MICROSCOPICAL INVESTIGATION INTO THE NATURE OF THE SO-CALLED BACILLUS TUBERCULOSIS. By H. D. SCHMIDT, M.D., Pathologist to the Charity Hospital of New Orleans. Read before the Orleans Parish Medical Society, Nov. 6, 1882.

Koch's discovery of the bacillus tuberculosis, published in the "*Berliner Klinische Wochenschrift*," April, 10, 1882, renewed the interest which I had previously felt in this subject, whilst engaged, during the fall and winter of 1881, in extensive microscopical investigations into the structure, the development, and degeneration of miliary tubercle. Though my faith in the theory of the *contagium vivum* had been considerably shaken by my former failure to detect minute parasitic organisms in the blood and tissues of fatal cases of yellow fever and leprosy, nevertheless, this theory once more gained my confidence by the authoritative position of the discoverer of this new bacillus. But a certain point in his own statements appeared to me rather suspicious. I refer to the statement that the bacillus tuberculosis

differed from all other known bacilli, with the sole exception of the bacillus lepræ, in its behavior toward staining fluids. Still, not regarding this special behavior as impossible, I determined to regard the existence of this bacillus as a fact, unless convinced of the contrary by personal observations.

In order, therefore, to inquire into the existence and nature of this new bacillus, I went, at once, to work, and prepared, from the abundant pathological material constantly at my disposal, a number of specimens of sputa, and thin sections of tuberculous lungs, which sections I stained with the methyl-violet and vesuvin liquids, prepared with the greatest precision after Koch's directions, and then mounted them in Canada balsam. In examining both sputa and sections under the microscope, I failed, however, to detect anything in the shape of a bacillus, stained blue *to the degree which I expected.* Thinking that, perhaps, the brown color of the vesuvin might have hidden the bacilli, I now concluded to lay aside this color, and, accordingly, stained another set of sections and specimens of sputa, with methyl-violet alone, the surplus of which I removed by absolute alcohol and oil of cloves. Some of these preparations were then mounted in balsam, and the rest in glycerine. The microscopical examination, however, was attended by the same results as before, with the exception of one specimen of sputa, in which I observed a few minute, highly refractive rods of a greenish-blue tint, resembling in shape small bacilli.

Although I had thus far failed to demonstrate satisfactorily the bacillus tuberculosis, I still had faith in its existence, because I had learned from some medical journals that the minute, blue-stained rods had really been seen in London in some preparations which Koch himself had sent to that city; while, on the other hand, the want of success in staining the organism, experienced by some English microscopists at the Brownian Institute of the same city, consoled me for my own failure. But being still very anxious to behold this new parasite, especially in its original haunts, miliary tubercle, I resolved to have recourse to the old, long-tried bacteria detective, a solution of caustic potassa. With this solution, 30 per cent. in strength, I then succeeded in rendering visible, in thin sections of the tuberculous tissue, as well

as in specimens of sputa, a number of minute rods, corresponding in form and size to those which Koch described as the bacilli tuberculosis. They were, as this investigator had stated, generally met with in small groups along the margins of the tubercles, exhibiting a greenish-blue tint, and being highly refractive. Notwithstanding that this high degree of refraction, exhibited by the bacilli, appeared to me extraordinary, I could not deny that, in other respects, the rods which I observed presented somewhat the form of these minute organisms, and this view became strengthened when I observed a minute granule on one end of one of the rods, which I imagined to represent the sporangium, also reported to have been discovered by Koch. And, having thus arrived at the point of admitting to myself that these bodies might represent true bacilli, I was ready to set aside my former views on this subject, and to pass over into the camp of the germ-theorists. This change of opinion, however, lasted but a short time, for a certain observation which I then made in the same direction, determined me to remain for awhile in the old quarters. I observed that these rods were almost always found in company with fat globules, and frequently, also, with granules of black pigment. This observation, of course, changed the face of the question, for it reminded me of the fatty crystals which I had observed, not only in the degenerating fat-cells of the subcutaneous layer of the skin in cases of leprosy, but also in the cells of other pathological tissues, as well as in vomited matter, and in fæces. In fact, every working pathologist knows that the crystals of fatty acids, either free or enclosed in cells, are not infrequently encountered in the examination of pathological specimens.

In returning, therefore, to the section of tuberculous lung-tissue under discussion, it remains to be stated, that at the time when I first beheld the groups of minute rods, the protoplasm of the tubercle-cells in the section had already been considerably acted upon by the solution of potassa, and thus been rendered very clear. In examining the next section, likewise treated with the solution of potassa, I endeavored to find the rods, before this fluid should have rendered the histological elements of the lung-tissue indistinct; and while thus examining along the margins of the tubercles in the section, I noticed a number of cells of an

opaque and somewhat blackish appearance, and in keeping my attention directed to these cells, I observed how their protoplasm cleared up more and more, and, finally, that they were filled with larger and smaller fat-globules, between which the minute rods gradually made their appearance (fig. 1). With the clearing up of the protoplasm, the latter were rendered sufficiently distinct to bear a close examination. In this section the cells, which were almost all filled with fat-globules, and many of them with pigment-granules beside, chanced to contain numerous rods, which, however, considerably differed among themselves, both in length and form. While some of them represented true rods, with slightly pointed, or even square ends, others presented the form of fine needles, with their ends terminating in fine and very slender points; and others, again, presented the form of a lancet. All these minute bodies, however, were characterized by very sharp and dark contours, and by refracting the light very highly. Like fat-globules, they concentrated the light passing through them when brought out of focus by removing the objective further off, while they were rendered dark by a closer approach of the latter.

These examinations were then repeated on a great number of other sections, which I had specially made for these investigations from the lungs of four cases of tuberculosis, including two of miliary tubercle. But, in every section which I examined, I met with the same results as above stated. In a number of specimens of sputa, also treated with the solution of potassa, the minute rods were now easily detected, either free, or still enclosed in the fattily degenerated, and frequently pigmented cells.

The suspicion, however, that these bodies might, after all, only represent minute fat-crystals, had taken hold of my mind, and was much increased by the following accidental observation: From my microscopical examinations of the various organs of several patients dead of yellow fever which had occurred during the summer at the Charity Hospital, I had kept a large number of thin sections for subsequent studies, more especially for the detection of minute parasitic organisms. And it thus happened that, at the same time when I made the above described observations on the sections of tuberculous lung-tissue, I also treated with the

same solution of caustic potassa, for the purpose of detecting bacteria, some sections of yellow fever liver, kidney, and heart, which, as I knew from previous examinations, were considerably affected with fatty infiltration or degeneration. But failing to discover any bacteria in these sections, I put them aside, mounted as they were. The next morning, however, when I chanced to re-examine them under the microscope, I was surprised to find them covered with crystals of fatty acids, which had formed since the preceding day. The crystals themselves, as well as their arrangement into figures, appeared to differ in the different tissues represented in these sections: for, while in one section they appeared in the form of a regular cluster of needles, radiating from a common center, they presented themselves in the other in the form of branches springing from a delicate stem, or even in small groups, arranged in an irregular manner. The greater number of these crystals resembled those of margaric acid; they were sword-shaped, and were marked by very delicate outlines; others appeared in the form of minute needles, or lancet-shaped leaflets, with very dark and heavy contours, forming ramifications like the branches of a tree; these, very likely, represented stearic or some other fatty acid. At any rate, some of the individual minute crystals, especially those at the root, where the little branch arose from the patch of fat, were identical in form with the minute rods, needles and leaflets contained in the tubercle cells. In the sputa of tuberculous patients, treated with the same potash solution, the same crystals above described were also observed to form (fig. 8). Subsequent investigations into this subject showed me, furthermore, that these crystals may be produced in any tissue which has undergone fatty degeneration, such as cancer, etc.; and even with an alkaline solution much weaker than the one which I had used. If a film of tallow, produced by rubbing the glass slide gently with a small piece of tallow candle, is treated with caustic potassa, minute lancet-shaped crystals will appear in a time as short as half an hour.

The artificial production of pseudo-bacilli tuberculosis in the form of minute fat-crystals, which I had learned by this observation, could not but strengthen the suspicion with which I had previously regarded the minute rods and leaflets contained in the

tubercle cells, and therefore, all that now remained to be done was to prove, in a more reliable and positive manner, that these bodies also represented the crystals of a fatty acid. Accordingly, I selected several sections, cut from the tuberculous portion of a lung which I knew, from previous examination, to contain considerable numbers of the degenerated cells in question. These sections, in order to be sure of their really containing these cells with rods, were treated with the potassa solution, and then put under very thin cover-glasses, upon glass slides, for examination. Having thus assured myself of the presence of numerous rods and leaflets in the cells of these sections, I placed the slides, upon which the latter were mounted, under water contained in glass saucers, for the purpose of making the cover-glasses float away from the sections. As the latter, by the action of the alkaline solution, were rendered quite soft, the manipulation had to be executed with great care. Nevertheless, I fully succeeded in removing the delicate sections from the slides into the water. From this, they were, by the aid of a small camel's hair brush, carefully transferred to alcohol, and from this to ether, contained in a small test-tube. After the ether had been heated to its boiling point, for the purpose of dissolving, if possible, the minute rods in the sections, the latter were transferred again to the alcohol, and from this to the water, to be finally remounted upon the slides in a weak solution of potassa, or in a medium representing a mixture of alcohol, water and glycerine. Upon close re-examination of these sections, under the microscope, it was found *that every minute rod and lancet-shaped leaflet which they had before contained, had now disappeared;* in other words, *they had been dissolved by the ether.* The results of this experiment speak for themselves, for they conclusively show that my suspicions respecting these minute rods and leaflets, *that they represented the crystals of a fatty acid*, were well founded. True bacilli, as everybody knows, will never dissolve in ether; on the contrary, their protoplasm will only be rendered more consistent by the action of alcohol and ether. I obtained the same results with other sections, which I subjected to the same process, with the modification that instead of boiling the ether, I left them in cold ether for several hours.

Having thus become familiar with the characteristic appearance of these minute crystalline rods and leaflets, and, moreover, knowing now the particular localities in the sections where to find them, I proceeded to re-examine those sections which, stained by Koch's method, I had mounted in Canada balsam. These re-examinations ended in the discovery of a number of minute, faintly blue rods, identical with those observed in the sections treated with the solution of potassa. In these sections, however, the pseudo-bacilli appeared less numerous, for the reason that the majority of them remained hidden in the protoplasm of the cells, rendered brown by the vesuvin, and therefore, only those rods which happened to be outside of the protoplasm, or in very thin and light portions of the section, could be seen; the great transparency of the Canada balsam, also, prevented them from being brought into view. But the principal reason for the failures in detecting the imaginary bacilli during my first examination of these stained sections was, that I had expected to find them stained, *like true bacilli, or micrococci, of a bright blue*, while, in reality, *they are not stained at all*, but simply present their natural bluish tint.

While I was thus engaged in these investigations, I learned, through some medical journals, of the improved staining methods of *Ehrlich* and *Gibbes*, and took steps to procure from New York some aniline oil and chrysoidin, which could not be obtained in this city. As soon, therefore, as these substances came to my hands, I prepared, in accordance with the given directions, and with the greatest precision, the liquids required for these methods, and proceeded to put them to test. And, in strict accordance with the prescriptions for these two new methods of staining, a number of sections of tuberculous tissue, and specimens of tuberculous sputa, were stained, and then mounted in Canada balsam. But, as was the case with the preparations stained by Koch's method, the examinations of these specimens led to the same results. The pseudo-bacilli remained unstained, presenting only, as before, their natural bluish tint.

After this new failure experienced in the attempts at staining the imaginary bacillus tuberculosis by the improved methods of Ehrlich and Gibbes, which, on account of the aniline oil contained

in the staining fluids, were represented as much superior to Koch's original method, I concluded to inquire a little closer into the nature of these fluids, and accordingly, examined under the microscope a drop of Ehrlich's solution. The examination revealed the fact that this fluid contained an indefinite number of minute globules of the aniline oil, colored blue by the methyl-violet; a circumstance which at once exposed the erroneous idea of the specific action of this oil in the staining of these bacilli. This substance, representing the basis of the aniline colors, was supposed to prepare the bacilli for the reception of these colors. The results which I obtained from the microscopical examination show that, though a certain quantity of the oil may be absorbed by the water, another, and perhaps a larger portion remains—notwithstanding the close filtering—suspended in the fluid in the form of minute globules, which, in reality, are the true carriers of the color. Now, it is hardly possible that these colored oil-globules are absorbed by the minute crystalline rods, leaflets and needles. The examination of Gibbes' staining fluid, in which the aniline oil is dissolved by alcohol instead of water, gave the same results.

But again, in both of these methods, the specimens, after being stained, are treated by a solution of nitric acid, until, according to the directions given, the color absorbed has nearly disappeared, when the action of the acid is arrested by washing in water. In order to see how much was left of the color in the sections, I selected a number of them, treated to a greater or lesser extent by the acid solution, and mounted them in different media, such as water, glycerine and Canada balsam, for microscopical examination. The latter showed that the color which had remained behind was not fixed in the pseudo-bacilli, but mainly in the nuclei, and also protoplasm of some of the cells. The results of this examination, therefore, showed that the advantage gained by treating the specimens with the solution of nitric acid is, like that of the aniline oil, but imaginary; and furthermore, that the specimens, after being stained, might as well be treated at once with the vesuvin, or chrysoidin, as Koch originally did. In fact, the method of staining which Koch originally employed is, if not better, at least fully as good, as those of Ehrlich and Gibbes.

In the staining of the bacillus lepræ, stress has been laid upon

treating the leprous tissue, previous to the staining, with an alkaline solution, particularly of caustic potassa. The pretended purpose of this alkaline treatment is to dissolve the outer layer of these bacilli, supposed to consist of cellulose, and to facilitate, by the destruction of this layer, the absorption of the aniline colors by these organisms. This supposition must appear unfounded to any one familiar with the staining of vegetable tissues, as vegetable cells, the most of which possess an outer cellulose coat, absorb very readily aniline colors, especially methyl-violet, without being subjected to the action of an alkali. Koch also attaches the greatest importance to the presence of an alkali in the staining fluid for his bacillus tuberculosis, but omits to state the object in view. He, however, says distinctly, "that by increasing the strength of the potassa solution, the bacteria may still be stained in places, where with a weaker solution of this alkali they refuse to make their appearance."* Now, by referring to the description which I have given above of the process by which the minute rods, or pseudo-bacilli, are rendered visible, every thinking physician will at once guess the part which the solution of caustic potassa plays in the demonstration of these bodies. This part simply consists in rendering the protoplasm of those degenerated cells, containing the rods, softer, and clearer to the passage of light, by which the rods are finally brought into view. In the methods of Ehrlich and Gibbes, the same part is played by the aniline oil.

Besides the stained sections already mentioned, I have, in the course of these investigations, stained many others, either by the methods of Koch, Ehrlich and Gibbes, or by modifying them to a certain extent; and I have thus ascertained, as I previously expected, that the successful staining of the pretended bacilli does not depend upon a given strength of the staining fluid. Every body knows that in the staining of animal and vegetable tissues, a weak solution of the staining material stains as thoroughly, or even more so, than a stronger one, provided the tissues are left in it a sufficient length of time. The weaker the solution, therefore, the more time is required by the tissues to absorb the color, and *vice versa*. The staining of Koch's bacillus tuberculosis

* "*Berliner Klinische Wochenschrift*," April 10, 1882, p. 222.

takes place under the same conditions. Neither is it essential, as in Koch's method of staining, that the alkali should be incorporated in the staining fluid; on the contrary, if the sections are first exposed to the action of a one per cent. solution of caustic potassa — which is about equivalent to the alkalinity of Koch's staining fluid—for twenty-four hours, and subsequently to the simple solution of methyl-violet, they will absorb the color just as well, and more rapidly, with the same final results. As long as the alkali fulfills its mission of softening the protoplasm of the cells for the ready absorption of the coloring material, it matters not whether the staining be accomplished in a shorter or longer time; though I think that the tissues are stained more evenly and thoroughly by leaving them for a longer time in a weaker solution of the staining material.

In connection with the foregoing, I will mention an observation, which I made on some sections of tuberculous lung, soaked in pure aniline oil, before they were put in the solution of methyl-violet, and which, after being stained by the latter, were treated with the solution of nitric acid until rendered green, and then mounted in glycerine. The microscopical examination of these sections showed nothing particular. But, when re examining them on the next day, I found them covered with a great number of larger and smaller brown fatty globules, from the periphery of which projected a number—from one to four or five, of long needle-shaped crystals; the thickness of the needles was proportionate to the size of the globules, some of which were very minute. Beside these needles arising from the fat-globules, however, there were a number of others, more minute and slender, and without globules, but lying free in the field, either single or in small groups; they differed in length, some terminating in very fine and slender points, while others appeared in the form of minute rods. I of course perceived at once that these globules in the section represented aniline oil in the act of crystallization, which was probably induced by the conjoined influence of the nitric acid and the tissues. Next, I put a drop of Ehrlich's solution upon a glass slide, and after somewhat flattening it, put into its center a minute portion of the nitric acid solution, which at once rendered this part of the staining fluid green; then a

cover-glass was applied to the preparation, and the slide put aside. When the preparation was examined on the next day, minute needle or rod-shaped crystals were observed. These facts show that minute crystals of various forms may be artificially produced in animal tissues with great facility.

At this period of my investigations, as may be judged from the above statements, I was convinced of the crystalline nature of the minute rods which I had observed in the sections of tuberculous lung; and accordingly, I might have published the results which I had obtained about three months ago. But, even at the risk of losing my claims to the priority of these observations, I preferred to extend the investigations to a still greater number of cases, in order to substantiate the facts which I had elicited. Therefore, the investigations were repeated on eight additional cases of tuberculosis of the lungs, of which I made hundreds of sections, which, together with numerous specimens of sputa, were carefully prepared and studied in the various manners already described. Thus the experience I gained on the subject is now based upon the careful examination of several hundreds of sections from tuberculous lungs, and specimens of tuberculous sputa. Beside these preparations, however, I examined a great number of sections already stained with picro-carmine and hematoxylin, which I had kept in good condition in alcohol and water from my previous studies on the structure of the miliary tubercle during last winter. These sections proved, notwithstanding their being stained, to be as useful for the study of the subject as those freshly made.

Having stated, in the preceding pages, the principal facts elicited by my investigations into the nature of the so-called bacilli tuberculosis, I shall now proceed to describe and discuss in detail some of their more salient points, commencing with the minute crystalline rods, leaflets and needles, somewhat resembling in form, when superficially examined, the bacilli.

As I have mentioned once before, these bodies (figs. 1, 2 and 3) differ among themselves, both in form and size, and are distinguished by refracting the light in a much higher degree than true bacilli. When, therefore, a very thin section containing a number of these rods is examined under the microscope, with the

aid of a first-class achromatic condenser, it will be found that those rods which lie at the surface of the section appear, *like other crystalline bodies*, very bright and shining, as soon as they are illuminated by very oblique rays of light proceeding from two different directions—obtained by making use of the eccentric orifices in the diaphram of the condenser—while, at the same time, all the other elements of the section appear but feebly illuminated. Although the different forms of these bodies may already be recognized without difficulty in the sections cleared up by the solution of potassa, they are still better seen by allowing the potassa to act for a longer time upon the histological elements of the section, until these are nearly destroyed with the exception of the elastic tissue framework of the alveoli. Then, by passing a small current of water between the slide and the cover-glass by means of a small piece of blotting-paper, the disintegrated protoplasm is washed away, and the minute crystals are properly exposed for examination (fig. 2). In such preparations, the fine, slender points of the needle or sword-shaped crystals, which before were buried in the protoplasm, are now fully exposed to view. A number of these pseudo-bacilli will present themselves in the form of shorter or longer ellipsoid or lancet-shaped bodies, while others will appear in the form of longer or shorter rods. The ends of many of the latter are distinctly rectangular, while in others they are slightly pointed. There are, however, a number of these rod-like crystals, particularly the shorter ones, which only exhibit their lateral outlines, in the form of two dark parallel contours, while the outlines of their rectangular ends can hardly be seen (figs. 1, 2 and 7). In these rods, the ends probably terminate in sharp edges, or are buried in the remains of the disintegrated mass of protoplasm.

The crystalline pseudo-bacilli are almost always found in company with a larger or smaller number of fat-globules, together with black pigment-granules, either single, or collected into small masses. Sometimes small groups of crystals are met with only associated with pigment, or, if fat be present, it is in the form of a few minute globules; but not unfrequently, also, single or small groups of crystals are found only accompanied by a small group of pigment granules (figs. 1 and 2). In fact, the association of

these minute crystals with fat or pigment is so characteristic, that in order to find the former in the sections, it is only necessary to look for the groups formed by the latter; for it is very rare to find even a single one of these minute crystals without some pigment-granules in its vicinity. In sections mounted in oil of cloves or Canada balsam, the fat disappears from view, in consequence of the transparency of these media, while the pigment-granules, on account of their dark contours, are rendered more distinct. The centers of these granules, when brought into the proper focus, present the same bluish tint as characterizes the pseudo-bacilli. And, as far as I may judge from my observations, there remains no doubt that the fat-globules, crystals, and pigment-granules stand in a very close relation to each other. This supposition is not only supported by the fact that these elements are almost always found associated together in groups, but moreover, by other forms observed, which are transitory between these fat-globules, crystals, and pigment-granules. Thus, in closely examining many of the collections of black pigment deposited along the margins of the miliary tubercles, or even along the blood-vessels in the alveolar septa, small collections of fat, not in the regular form of globules, but in that of triangular, quadrilateral, elongated, or otherwise irregular patches of a dirty greenish, or even blackish appearance, are frequently met with; sometimes one portion of such a patch has already assumed a blackish color, while the rest still exhibits its greenish tint. In company with these patches, small plates of a triangular, quadrilateral, or rhomboidal form, or even minute rods, as well as large elongated pigment-granules, are often seen; they all show their crystalline nature by their heavy, dark contours, and their high degree of refraction (figs. 2 and 7). These elements, both fat-globules and crystalline plates, are not alone met with in tuberculous lungs, but also among the masses of black pigment in the alveolar septa of healthy ones. In the sections which I made from the healthy lung of a syphilitic woman, for instance, I thus observed not only a number of these elements, but also some minute crystalline rods. In examining closely the fat contained in the cells of any tissue affected by fatty infiltration or degeneration, it will be found that it does not always appear in the form of globules, but also in that of

small oblong or even rod-like patches; this is especially the case in such portions of the organ, or neoplasm, where the circulation, and in consequence, the nutrition, have been interrupted for some time by the obliteration of the minute blood-vessels. Under such conditions an inspissation of the fat deposited in the cells takes place, which finally leads to the crystallization. This condition particularly occurs in tuberculous and leprous tissues. In miliary tubercle, as we know, the minute blood-vessels of the alveoli are obliterated at an early date of the pathological process by the proliferation of the tubercle-cells, which, for the want of nutrition, soon undergo fatty degeneration; they, moreover, by the continuous growth of the tubercle, become farther and farther removed from the supply of nutritive matters, as well as from the influence of the healthy tissues. It is under these circumstances that an inspissation of the fat which these cells contain, takes place, leading, finally, to the formation of the minute crystals; and, as the center of the tubercle is most remote from the healthy tissues, we would naturally expect the first crystals to be found in this place. But this appears not to be the case, for though not infrequently the crystalline rods, either single or in small groups, are met with in the center, and throughout the cheesy part of the tubercle, it nevertheless happens that they are found in much greater numbers along its margin. Though a reasonable explanation for this apparently contradictory phenomenon may be given, I must forbear at present from doing so, as it would lead me too far away from the main subject, and increase the length of this article. I therefore postpone the explanation of this phenomenon to some other occasion, and confine my remarks to stating, that I have also found comparatively large crystalline masses, or large groups of single rods and leaflets, in the indurated portions of tuberculous lung; they were unaccompanied by fat-globules, but always found in the vicinity of collections of pigment granules (fig. 6). These masses, when examined with oblique illumination, always resolve into an aggregation of minute rods, or needles. The same form of fatty crystals may be artificially produced, by means of the potash solution, in the sputa of tuberculous patients, or in any fattily infiltrated or degenerated tissue.

But the finest display of the minute crystalline rods, leaflets and needles I observed in the sections of a group of bronchial lymphatic glands, from a case of peri-bronchitis fibrosa. These glands, as is sufficiently known, contain a great deal of black pigment. The sections in question I had made and stained during last winter, and they had since been kept in a mixture of alcohol and water, but nevertheless showed their structure as neatly as if they had been cut the day before the examination. The microscopical examination of these sections, made after they had been treated with the potassa solution, revealed all the forms of the minute crystals above described; they were found throughout the tissue of the gland, but particularly in the vicinity of the abundant collections of black pigment, and between the groups of granules of the latter, all the transitory fatty and crystalline forms to which I have referred above, could here be thoroughly studied. After the section had been exposed to the action of the potassa solution for several hours, it was washed by a small current of water made to pass through it under the cover-glass; by this process the crystals were fully exposed to view, and appeared as they are represented in fig. 7. The most interesting part of the observations made on these sections, however, relates to the fat-cells met with in the areolar connective tissue which binds together the individual lymphatic glands of the group; a considerable number of which—at least one dozen in each section—were found to be completely filled with the minute rod or sword-like crystals of margaric acid. While in some of these cells all the crystals radiated from one common center, in others they radiated from the center of several large fat-globules contained within (fig. 3). In a number of instances the membranes of the cells had been opened by the knife, allowing a portion of the crystals contained within to escape and to present themselves to full view. Some of these sections were after the examination, subjected to the action of boiling ether, in the manner above described in connection with the sections of tuberculous lung, and when they were re-examined, it was found that *every crystal had disappeared*, and nothing but the empty cell-membranes were left (fig. 4). As in the sections of tuberculous tissue, the ether had dissolved the crystals.

Although the fattily degenerated cells are always met with in the tuberculous portion of a lung, they do not always contain pseudo-bacilli; it may happen, even, that while great numbers of these crystals are found in the sections made from a certain piece of tuberculous lung, none will be met with in other sections made from a neighboring piece of the same lung. In the sections made from different parts of the lungs of a case of disseminated miliary tubercle of eight months' standing, a boy fifteen years of age, I met with very few crystalline rods, though very numerous cells filled with fat-globules were present. The crystals here, together with the transitory forms which I have mentioned above, were chiefly found in company with groups of pigment-granules; this case, therefore, offered a favorable opportunity for the study of these transitory forms. There were numerous cavities, mostly small in size, and filled with a thin, glairy fluid found in the lungs of this case. In examining the fluid, a few hours after death, it was found that its viscidity was chiefly due to the presence of myriads of sphero-bacteria, and also small pus-corpuscles. The bacteria were clustered into innumerable minute balls, and many of them still in motion. In some of the sections, made from the border of a cavity, I observed quite a number of capillary vessels filled with numerous bacteria termo, which undoubtedly came from the cavity. But, as these organisms were obviously derived from the inspired air, there can be no significance attached to their presence.

The degenerated cells containing the pseudo-bacilli are, as before mentioned, not infrequently met with in the sputa of phthisical patients. I have, as yet, not had sufficient time to positively determine the exact route by which they get into the expectoration; for, though I have, in a few instances, met with some of them in apparently healthy alveoli, I do not think that they originated in these places. But, as they are frequently found in the close vicinity of minute cavities, and but rarely near the borders of a large cavern, we may presume that they are set free in the beginning of the breaking down of the tuberculous mass, when they may escape through a small bronchiole, laid open by the ulceration of the tubercle. The same characteristic cells, containing a small mass of pigment, with or without fat-globules

or pseudo-bacilli, are also frequently met with in the expectoration. At any rate, the presence of these cells, either with or without the crystalline rods, or of single free rod-like crystals, always indicates the presence of minute tuberculous cavities in the lungs.

With regard to the mode of preparing the specimens of sputa, I may add, that they are simply spread as thinly and evenly as possible upon a glass slide, and left to dry; then one or two drops of the potash solution are put upon them, and the cover-glass applied. The particular strength of the solution is of little importance, for the stronger the solution the quicker the action, and *vice versa*. The same with the sections, which may before being mounted, be first exposed to the action of the solution, contained in a small porcelain capsule, or in a deep watch-glass. The time of exposure is about fifteen minutes for a 30 per cent., one hour for a 10 per cent., and twenty-four hours for a 1 per cent. solution. From the solution they are transferred to pure water, and from this, by means of a small spatula, to the slide. There the water is removed from the section by means of a moist camel's-hair brush, after which two or three drops of the potash solution are put upon it, and the cover-glass applied.

While I was pursuing the investigations described in the preceding pages, I often asked myself, whether the pseudo-bacilli which I observed were really identical with Koch's bacilli tuberculosis, or whether there existed some *true* bacilli, besides, in the tuberculous portions of lungs, which I had failed to discover. For I could hardly conceive the idea that one holding so prominent a position in the medical world as Dr. Koch, could commit the error of mistaking minute crystals of fatty acids for organized beings. But, as he has not mentioned in his treatise these crystals, which in so many points correspond to the description he has given of his bacillus tuberculosis, I must presume either that they have escaped his notice, or *that they are identical with the bacilli he described.*

I have already remarked, that the natural bluish color, which these minute crystals exhibit, may be taken for true staining with methyl-violet; and I have also stated that if sections of tuberculous lung, containing the pseudo-bacilli, are, after treatment with

the solution of caustic potassa, stained *only* with vesuvin, and then mounted in Canada balsam, *these bodies will show the same blue tint as if the sections had previously been stained with methyl-violet.* My suspicions that Koch's bacilli had never been stained, were considerably strengthened when I read the remarks made some time ago by the Berlin correspondent of the Philadelphia *Medical News*, who, though apparently a tyro in scientific microscopical matters, is an enthusiastic admirer of the bacillus tuberculosis. This gentleman, in describing the method of preparing the specimen for the demonstration of the bacilli tuberculosis, says:* "The specimen may be conserved in the usual way with Canada balsam, but it is important to know that *the color fades out in about two months.* It may be restored, of course, by beginning *de novo*, after careful recovery of the specimen from its bed of balsam with turpentine in the usual way.

"Some one asked Dr. Koch, the other day, why he did not prepare and sell the specimens, and thus realize a small fortune. He would consider such a work unworthy the dignity of a science, he said, but even if he had not been restrained by any such feelings, he would have rendered himself liable to the charge of imposture, he added, with a smile, after the color of the specimens had faded out."

Here we have, then, Koch's own statement that his bacilli tuberculosis part with the color which they are said to absorb by the staining process. Now, true bacilli never part with the methyl-violet, having once absorbed it, but, like micrococci, or other vegetable tissues, retain it for years. This I know from experience. And often have I convinced myself of the greediness with which bacilli absorb methyl-violet, by simply stepping from my office to the street gutter, and procuring a portion of the rainbow-colored film which rests, almost throughout the whole year, upon the surface of the standing gutter-water. This film, when examined under the microscope, is found to be crowded with minute organisms, such as infusoria, algæ, and the whole list of schizomycetes, from the sphero-bacteria up to the spirochæta. When a small portion of this film is mixed with a weak solution of

* The *Medical News*, August 12, 1882, p. 193.

methyl-violet, and about ten minutes afterward examined under the microscope, it will be found that all the bacteria, among which is the bacillus subtilis, as well as the infusoria, are now colored purplish-blue, and that in proportion to the length of time during which they are exposed to the color the latter increases in intensity. A refusal of true bacilli to absorb fine coloring matters, such as methyl-violet, could only be explained by supposing them to possess, like diatomaceæ, a silicious coating. To assert, however, that the bacillus lepræ and bacillus tuberculosis do so differ from other bacilli as to possess such a coating, would require a very considerable stretch of the imagination.

Another instance of the early disappearance of the bacillus tuberculosis from the preparations, was communicated to me a few days ago in the following way: Some weeks since I learned, through one of our medical journals, that a certain prominent American physician had just returned from Germany, and brought with him several preparations of the bacillus tuberculosis from Koch's laboratory, which, at his arrival, he had exhibited to some medical society. Being very anxious to examine some of these specimens, for the purpose of comparing Koch's genuine bacillus tuberculosis with my crystalline pseudo-bacillus, I addressed a letter to this gentleman, in which I requested him to afford me this opportunity by lending me one of his specimens for a few days. My request was kindly granted. But, while I was anxiously looking for the arrival of the specimen, the doctor informed me by a second letter, "that all his specimens from Koch's laboratory had lost color, and hence the bacilli were invisible."

They had become invisible, because they had never been stained, though their natural bluish tint, with their contours, may have been distinguishable when the specimen was first mounted.

But let us try to find an explanation for this early disappearance of these crystalline rods from the balsam mounting. I have already alluded to the intermediate forms observed between the simple fat-globules and the crystals, or even the pigment, which is also crystalline in nature. Now, in examining, especially, the rod-like crystals a little closer, it will be found, that though they are all refractive in a high degree, their contours differ in the

different rods in sharpness, heaviness and darkness; for, while some of the rods are darkly and heavily contoured, the borders of others are marked by finer lines; the latter, also, present a brighter, more greenish tint. Now, it may be presumed, that this difference existing in the contour, indicates a difference in the degree of crystallization of the rods; the darker and more pronounced the contours the higher is the degree of crystallization, and at the same time, the greater the power of resisting solving agents. Accordingly I observed, during the re-examination of those sections of tuberculous lung which were boiled in ether, as described before, that, though the rods, in general, had disappeared, a few single ones—perhaps one or two in a hundred—exhibiting very dark and heavy contours, were here and there met with, having resisted the solving power of the ether. They might, perhaps, have finally dissolved, if the boiling in ether had been continued for a longer time. The early disappearance of Koch's bacilli in the balsam mounting may take place under similar circumstances, namely, they may be acted upon by the solving power of the benzol, which keeps the balsam in solution; though the increasing transparency of the balsam may also play a part in the phenomenon.

After the perusal of the facts brought forward in the preceding pages, the reader may, perhaps, ask: If this bacillus tuberculosis represents the minute crystal of a fatty acid, whence, then, came the bacilli which Koch obtained by cultivation from the sputa of phthisical patients, as well as from the tuberculous matter of the lungs? This question I can only answer by replying, that I attach no signification whatever to the presence of bacilli, or other minute organisms in the expectoration of tuberculous patients, because the germs of these organisms have, with each inspiration, ready access to the cavities of the lungs. It is a common occurrence to meet with micrococci, even, in the sputa of non-tuberculous patients, but more frequently still in that of phthisical patients. In some specimens of tuberculous sputa, I have even observed numerous bacilli subtilis, which, as I have stated before, are constantly found in our street gutters. Therefore, the assertion of any minute organism being the cause of tuberculosis is invalid, as long as this organism is not met with

in the blood, or in the tuberculous portions of the lung, and in such numbers as will render its noxious influence evident. As regards the bacilli which Koch raised from tuberculous matter, I can only say, that I always regarded with suspicion the organisms obtained by culture from pathological tissues or secretions, for the obvious reason, that their germs appear to be omnipresent, and the experimenter hardly knows himself the origin of all the bacteria which he finds in his culture-cell, or upon his culture-substance. The same remarks may be applied to the results of the inoculation experiments made on various animals, for the statements of the results of quite a number of experimenters, recorded in the literature on this subject, are so contradictory as to render it difficult to decide what is true and genuine.

Although there remains much more to be said on the subject of tuberculosis being caused by minute organisms, I must postpone all further remarks to some other, more opportune time, when I shall be more at leisure to continue the discussion on this interesting subject.

In connection with the bacillus tuberculosis I have a few remarks to make on its near kin, the *bacillus lepræ*. To find this bacillus I set about, nearly a year ago, and stained very thoroughly a number of sections of various leprous organs with methyl-violet. In examining these, mounted in Canada balsam, however, I failed to discover anything resembling a bacillus. Thinking it strange that I should have failed to see this bacillus, which from the statements of other observers, ought to have been present in these sections, I wrote a paper entitled: "Is the Bacillus Lepræ a Reality or a Fiction?" in which, beside reviewing the statements of other observers, I stated the results of my own examinations, and the method of staining I had employed. The paper was published in the CHICAGO MEDICAL JOURNAL AND EXAMINER, April, 1882. Two months afterward, a paper entitled "The Bacillus Lepræ," by Dr. I. Bermann, of Baltimore, appeared in the *Archives of Medicine*, in which the author winds up the subject as follows: "In the April number of the CHICAGO MEDICAL JOURNAL AND EXAMINER, Dr. H. D. Schmidt, of New Orleans, discusses the question whether the bacillus lepræ is a reality or a fiction. That he has not succeeded in

finding them in his specimens I cannot doubt, since it was testified that they could not be seen in them by microscopists in Chicago. I am satisfied that some fault in his method is alone the cause of his non-success, and I should be very glad to stain some of his material if he will send to me, and believe that I could convince him in this way of the unfictional character of the bacillus lepræ."

Now, notwithstanding that I have made double and triple stainings of thousands of sections, both of animal and vegetable tissue, and accordingly gained some experience in the various methods of staining, I am still ready to learn from others, even from my own pupils; and therefore, soon after reading the above remarks of Dr. Bermann, I complied with his request, and sent him a number of my leprous sections made from different organs of different cases, so that he might try his skill in staining the bacilli, which these tissues are said to contain. Some weeks after this, he informed me by letter that he had succeeded in staining the bacilli beautifully, but that in all of them the color had disappeared after three or four days, a circumstance which he attributed to the presence of the picric acid in the picro-carmine with which the sections had been stained, and that for this reason, he would try again to stain the bacilli by previously treating the sections with a strong alkali. At the same time, in order to convince me of the existence of the bacillus lepræ, he offered to send me a preparation of his own, still living, case. This was the last which I heard from Dr. Bermann. Even a letter addressed to him five weeks ago, in which I expressed the desire of beholding the bacillus lepræ, and furthermore, reminded him of his promise to send me one of his own preparations, remained unanswered. I must, therefore, presume that the bacilli lepræ in his own preparations have disappeared from view in the same manner as the bacilli tuberculosis of Koch, for the reason that they never had been stained. And that this supposition is based upon facts observed, I shall now show.

After I had discovered the minute crystals, described above, in the tuberculous lungs, I proceeded to treat a number of sections of leprous tissues from different organs and cases with the solution of caustic potassa, and, as I anticipated, met here with the

same highly refractive rod, lancet, and needle-shaped crystalline bodies, exhibiting the same blue tint as the former. As in the lungs, they were always found associated with fat-globules, and in many instances, even, seen to arise from them in the same manner as is observed in the crystals artificially produced by the action of caustic potassa upon tuberculous sputa (fig. 9, *b*). As in the case of the pseudo-bacilli tuberculosis, the same transitory forms, intermediate between the fat-globules and the crystals, and indicating the different degrees of crystallization, were here met with. Among these forms, a number of minute knotted or varicose rods, which evidently showed that they had been formed from a few very minute fat-globules fused into each other (fig. 9, *a*), were also observed. In the sections of leprous livers, also, many opaque-looking cells, containing a considerable number of these crystalline bodies in company with fat-globules were observed, though in many other places in the sections, single rod or lancet-shaped crystals, or groups, formed by two or three of them, associated with fat-globules, were likewise met with.

In order to make sure of the crystalline nature of these bodies, I treated a number of sections of liver, lymphatic glands, skin, etc., from different cases, with the potash solution; and after having convinced myself by microscopical examination that they contained the crystalline bodies, they were boiled in ether, in the manner described in connection with the sections of tuberculous lung. By re-examining these sections under the microscope, it was found that *every crystal had disappeared from view.*

In my paper on the bacillus lepræ, mentioned above, I stated that in my former studies of leprous tissues, I had met with a number of degenerated neoplastic cells (originally derived from the nuclei of the fat-cells lodged in the reticulated portion of the corium and the subcutaneous layer of the skin) filled with minute crystals of margaric acid; and furthermore, remarked that in sections not stained with hematoxylin or methyl-violet, these crystals, though easily recognized, might nevertheless be taken for bacilli. Rather thinking, at that time, that those small, very slender nuclei met with in the corium of the skin, were taken for bacilli, I little imagined that the remarks I made in regard to the crystals would come so near the truth. And now, after having

more thoroughly investigated this subject, I can hardly understand how these minute rod, lancet, and needle-shaped crystals could ever have been taken for true bacilli, characterized by their blunt, almost square extremities.

EXPLANATION OF THE ILLUSTRATIONS.

Fig. 1 represents a small portion of the margin of a tubercle. The section has been treated with the solution of potassa, which has rendered the tubercle-cells pale and indistinct. A number of fattily degenerated, opaque cells, containing the fatty acid crystals with fat-globules, are seen in two of the alveoli; their protoplasm has also been rendered clear by the action of the potassa solution, so that the various forms of the crystals are distinctly seen. Near the elastic fibers of the alveolar septa, the remains of degenerated cells, in the form of groups of crystals associated with black pigment, are seen. On the left side of the figure, the cheesy portion of the tubercle commences.

Fig. 2 represents an alveolar from a section of tuberculous lung, which had been exposed to the action of the potassa solution, until the protoplasm of the cells was completely destroyed, and the crystals exposed to full view.

Fig. 3 represents three fat-cells from the connective tissue, binding together a group of bronchial lymphatic glands; they are filled with fatty-acid crystals, as mentioned in the text.

Fig. 4 represents the empty membranes of some of these cells, after the boiling of the section in ether.

Fig. 5 represents two fat-cells from the vicinity of the preceding cells, in which the fat appears to have been converted into pigment.

Fig. 6 represents various forms of groups of satty-acid crystals, met with in the section taken from an indurated portion of the tuberculous lung bordering a cavern.

Fig. 7 represents a small portion of a section of a bronchial lymphatic gland, mentioned in the text. The glandular parenchyma has been destroyed by the action of the potash solution, exposing the crystals to full view.

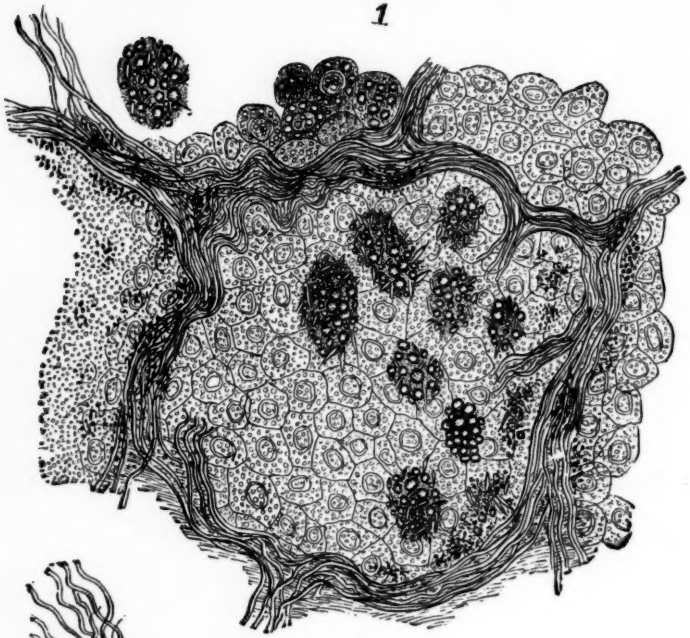
Fig. 8 represents the fatty acid crystals arising from patches and globules of fat in tuberculous sputa, treated with a solution of caustic potash.

Fig. 9. Pseudo-bacilli lepræ; *a*, different forms of the crystals; *b*, two hepatic cells, in which the pseudo-bacilli are seen to arise from fat-globules; *c*, remains of a hepatic cell, with the pseudo-bacilli lying between the fat-globules; *d*, hepatic cell containing very minute lancet-shaped crystals with minute fat-globules; when illuminated with oblique light, they all appear very highly refractive.

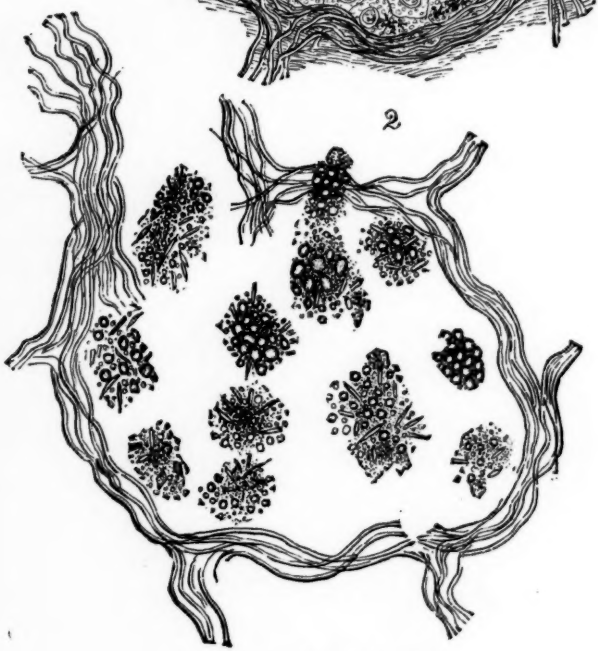
All the figures are magnified about 525 diameters.

NEW ORLEANS, Nov. 10, 1882.

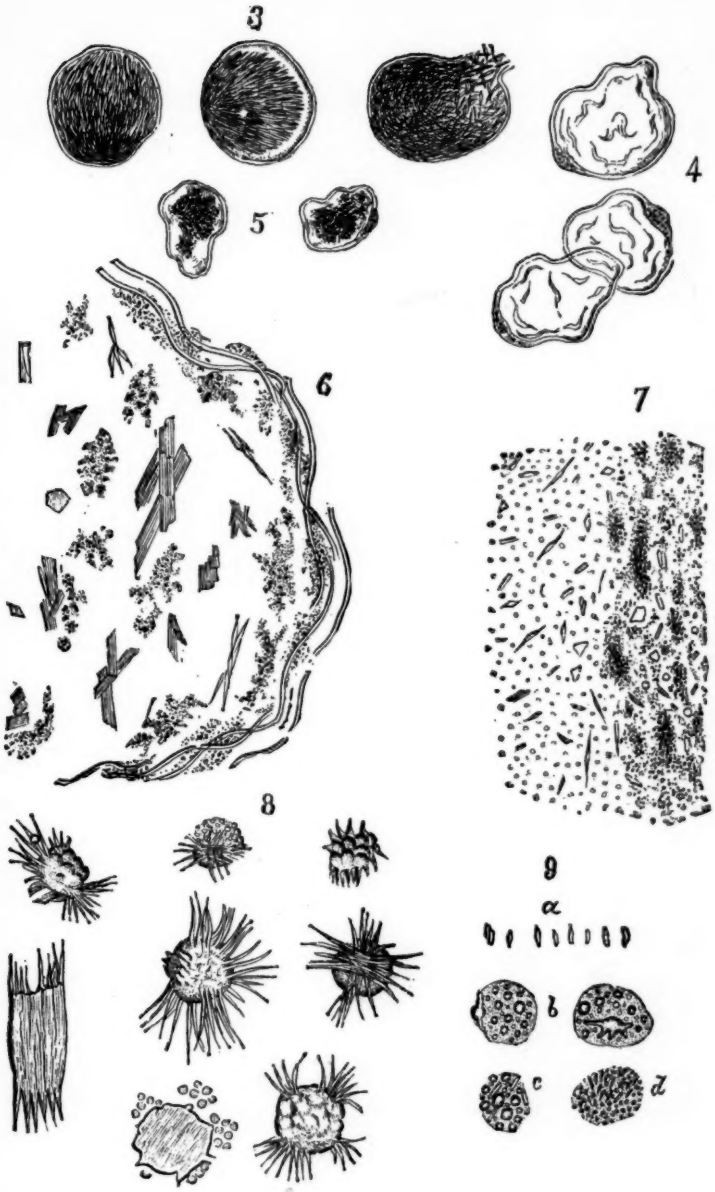
1



2



DRAWN FROM NATURE



BY THE AUTHOR.

Society Reports.

ARTICLE II.

AMERICAN DERMATOLOGICAL ASSOCIATION. (Continued from page 513, November number).

SECOND DAY—THURSDAY, AUG. 31.

MORNING SESSION.

The President called the meeting to order at ten o'clock. Dr. W. A. Hardaway, of St. Louis, reported a case of Pigmented Neoplasm of the Skin, and presented a colored portrait of the patient for inspection.

DISCUSSION.

Dr. Heitzmann, being called upon for his report of the microscopical appearance of the growth, said that he had received a small piece of the tumor, about one-fourth of an inch in diameter, which he had carefully examined. A transverse section had one striking peculiarity to the naked eye; that is, the linear portion of the growth, close above the subcutaneous tissue, contained dark brown pigment, while those parts above were spotted. Microscopically, the epidermal layer was considerably thinned, consisting only of three or four rows of cuboidal cells, beside the usual epithelium. The Malpighian layer was nearly lost; the lower layer of epidermis was nearly normal. The derma proper, on the contrary, was considerably altered, and greatly thickened; in this thickened portion several things were noticed. Growing toward the subcutaneous tissue were nests filled with tissue constituted entirely of medullary and embryonal bodies; there were some structureless bodies, corpuscles with indistinct nuclei, and others

with distinct nuclei, the detection of which required high powers. Lastly, there were bodies among the mass in the nests, in which plastids could be distinctly made out by studying the nuclei; to these the term myéloplaxes has been applied. In all this there were none of the characteristics of cancer; no marked reticulated body; no epithelial tissue, or nests of nucleated cells; but the material was evidently to a great extent newly formed. In this growth we find pigment accumulating in the medullary tissue in the globular nests, and sparsely in the connective tissue around the nests. The red blood-globules are unchanged, but the delicate reticular tissue is entirely filled with dark pigment.

It follows from this description, that the tumor was a new formation; and the existence of nests entirely devoid of basis substance to constitute medullary tissue, indicates a considerable degree of malignancy. But it is not cancer, for here the epithelial layers were diseased. Therefore, there only remains one variety to consider; it is a sarcoma, or, as he prefers to call it, a myeloma. Three varieties, round, spindle, or giant-cells, are usually described, and several additional forms have been distinguished. Those containing pigment have been called melanotic sarcoma. There is also the angio-lethic sarcoma, or psammoma of Virchow; and Billroth had another variety, which he termed medullary sarcoma, containing alveoli filled with cells (but no epithelium); this was accepted by Cornil and Ranvier, but Billroth in later years gave up the diagnosis of alveolar sarcoma, and concluded that it is a highly developed cancer. He (Dr. Heitzmann) had seen, both in Vienna and in New York, a number of these cases which appeared originally in the skin. One case, seen five or six years ago, he recalled.

The tumor was in the left groin. It formed a small nodule something like a mole. It was extirpated, but recurred; repeated extirpations ended in a like result. After a year or two, the tumor grew very rapidly, and was the size of a child's head. The consulting physicians pronounced it cancer. The overlying skin was so thin that they anticipated ulceration. Shortly afterward, the patient began to vomit a large quantity of sputa, without exhibiting much bronchitis. He (Dr. Heitzmann) examined the sputa, and found, beside the ordinary mucus and pus corpuscles

indicative of bronchitis, a large number of globules, smaller than pus elements; in fact, medullary corpuscles indicating myeloma, and predicted that the secondary formations were forming in the lungs. From this, also, he stated that the primary tumor was not cancer, but really sarcoma, simply from the examination of the sputa. Two months later the patient died, and the lungs were found studded with these sarcomatous granulations; the tumor was also found to be a medullary sarcoma.

The second case occurred in the skin of the large toe in a patient living in the country. The toe was amputated, and an examination revealed the fact that the growth was a very malignant type of alveolar sarcoma.

The third case was this one of Dr. Hardaway's, in speaking of which he said, "I adhere to this diagnosis of alveolar sarcoma, although Billroth has abandoned it, because I think that a tumor which gives rise to secondary tumors which are sarcomatous, must be sarcoma originally. The appearance of the growth in this case described by Dr. Hardaway, showed that at first it was not of a sarcomatous type, but afterward took on these characteristics, which are those of the worst form of sarcoma—a melanoma or pigmented sarcoma. The loose pigment in the center indicates that it has been an unpigmented growth covering over a pigmented one; now, I declare it to be a pigmented medullary sarcoma, the most malignant form of sarcoma. Such tumors generally occur in the skin of the hands and feet; they usually end within two years from the start. I have seen two or three cases in New York. Mr. D. had brown spots which appeared in his hands; afterward nodules formed, and I was called in consultation. After a microscopic examination, I predicted death within three years He died two months after the three years were up."

This case reported by Dr. Hardaway is not one of the worst instances, because originally the growth was local, and there is a tendency to involution, which is not uncommon in myeloma. Swelling of the lymphatics has nothing to do with the tumors. The prognosis is death within three or five years, with the formation of sarcoma nodules in the internal organs.

Dr. Duhring said that during the reading of the notes of the

case by Dr. Hardaway, but especially toward the close, where the lesions were described, he had been struck with a certain resemblance to a case he had brought before the Association two years ago. This was omitted in discussing the general diagnosis, and the speaker would like to hear the lecturer's views. On looking at the portrait, he could not help noticing the resemblance to the patient he had presented. It had the same features, especially the orange-colored border; apparently the same lesions, occurring on the body, shoulders, and on the neck and breast, which seemed to the speaker to be almost identical in their clinical aspect with the case now under discussion. He therefore had been surprised by the remarks of Dr. Heitzmann as to the conclusions he had drawn with regard to the nature of the disease. The pigmentation is not brought out very well in the portrait, being simply an obscure discoloration, but the color as seen in the border is almost identical with the case previously brought before the Association. Moreover, the tumor over the nose between the eyebrows is most suggestive of the former case. He asked, with regard to the pigmentation, whether the portrait was reliable?

Dr. Hardaway said that the portrait was very accurate. The centers are entirely free from pigment, but the border is darkly pigmented, with an orange color, except in the primary spots where the pigmentation is very decided.

Dr. Robinson remarked that if it is an alveolar sarcoma, it is strange that it had lasted so long. He asked if it is usual for an alveolar sarcoma to last eight or ten years?

Dr. Heitzmann stated that the tumor originally started with very little malignancy about it. The cells of the older portion were comparatively small; it was only the growth of the last year which showed the larger nests, and consequently a more malignant type.

Dr. Robinson had generally regarded round-celled tumors as being rather rapid in their growth.

Dr. Heitzmann said that it is true, as the rule. Dr. Duhring's case was a round-celled sarcoma, but developed slowly.

Dr. Taylor asked of Dr. Duhring if he would admit the diagnosis of sarcoma in that case, which he presented before the Association as an inflammatory fungoid neoplasm?

Dr. Duhring replied that he had accepted this view.

Dr. Taylor said that he asked the question because he would like that statement to go upon the record.

Dr. Atkinson reported the following case: An old German, a Hebrew, had within the last few years developed a very unusual condition of the feet. On the left foot, especially, there are a number of small pigmented tumors, looking like little blood-blisters with their contents coagulated, scattered over the foot; there were also large superficial blood-vessels. The lesions evidently began as angioma, and afterward became pigmented, forming melanotic sarcoma. On the leg are several small spots of the same color, resembling the discoloration remaining after chronic eczema in this situation; but they could have no dependence upon mechanical hyperæmia in this instance. The spots are sharply defined, and are permanent. In connection with the case reported by Dr. Hardaway, he would merely mention one point: that all these cases have relations to each other, although the appearances may vary; he believed that this view would simplify the diagnosis. When Dr. Heitzmann mentioned six forms of sarcoma, he merely referred to types. Nature, however, does not jump from one to another, but presents intermediate forms. Therefore, if we group several general ideas together, it will be found that there are some features in common, a consideration of which will prevent us from being puzzled. The general conclusion that there is this wide limit to the type, and an almost imperceptible merging of one form of new growth into another, will simplify diagnosis very much. Then, again, we have the interesting question as to the co-existence of tumors, probably not dependent upon metastasis, nor upon constitutional causes, which is an old doctrine, but perhaps due to trophic disturbances from causes residing in the nervous system. The fact is, that the new growth depends not upon a constitutional condition, but upon local conditions, which may be wide-spread, for instance in the skin, and which gives rise to similar tumors in different localities. This is also exhibited by some benign tumors, as fibroma molluscum, and certain forms of nævi. This is mentioned in order to show that the constitutional causes are not necessary to explain the wide-spread character of the lesion.

Dr. Piffard said that he understood that the characteristics of this growth were the absence of change in the epithelial layers and the occurrence of lobuli filled with plastids and granular substance, and that this co exists with the deposit of pigment. He stated that he has in his possession sections showing the same appearances: absence of changes in the epithelial layers; lobuli filled with cells. One of these cases he had reported, and Dr. White reviewed the paper, and declared that it was a case of epithelioma, although there was no dipping down of the epithelial layers into the rete. What was remarkable in his case was, that ulceration was so long deferred; in one case it was eight years, in another two years. Friedrich Friedländer and Thoma Coloniati also refer to this peculiarity.

The case he now referred to was one he had described as rodent ulcer, *lupus exedens*, and the condition is also described by the authorities just named, as well as by himself eight years ago. The only difference that he could see was that in his own case, there were pigmented granules; otherwise it was the same, so far as descriptions and drawings are concerned. He did not, however, consider this as agreeing with Dr. Duhring's case, but rather as belonging to rodent ulcers, rather lupoid than epitheliomatous. When it comes to the diagnosis of sarcoma, there is no uniformity in the distinction, and the word sarcoma has been applied to everything which is not carcinoma. If we accept this definition of sarcoma, then the growth is sarcomatous, but it is not so in the ordinary application of the term.

This disorder is not very malignant during the life of the patient; it is a slow growth, and slowly tending to ulceration. The point he wished to make is, that this development tends to enlargement of glands, or has a strumous tendency. He understands that Dr. Fox, who saw the case, also regarded it as of a lupoid nature.

Dr. Hardaway said that Dr. Fox had seen the case, but he was not aware that he had come to a positive conclusion with regard to it.

Dr. Heitzmann said that oncology is a most interesting study, but before our own day such knowledge was not possible. Virchow commenced to write a work on tumors, but never finished

it. Ten years have since passed, and the science has made great advance. His work on the Microscopic Morphology of the Animal Body in Health and Disease is now in the hands of the binder, and will be issued next week. In it this question had been discussed more completely than he could do at present. The whole subject of tumors has been much simplified; under twelve heads we can now place all tumors, with several varieties; so that there need be not much difficulty in classifying tumors. Still, there are questions that are not satisfactorily settled; among these is the origin of sarcoma. Dyscrasia, etc., are terms which for hundreds of years have filled medical books, but are still unexplained. Everybody speculates upon these matters, but without much profit; if one contends that the cause is constitutional, he finds support; if he says it is local, he will also find others to agree with him. The stand taken by the speaker is that "we don't know." Let us wait until facts come to throw light upon the etiology of tumors, but so far we do not know, and that closes all discussion.

Regarding Dr. Piffard's remark as to the structure, he must say that these tumors have nothing in common with epithelioma, and nothing in common with lupus. He had called them sarcoma, and the doctor had reminded him that the definition of sarcoma varies from week to week. This really is not true. The histological characters of sarcoma were established twenty years since by Virchow, which, in short, are "embryonal connective tissue and basis substance," which is eminently satisfactory. The fact that there are degrees of malignancy, is no objection to this view. We may tell the degree of malignancy by watching the microscopic characters. The fact is, that the amount of fibrous tissue shows sufficient to account for the slow growth in the cases under consideration; and the thickened appearance of the tumors affords, therefore, a better prognosis. With regard to epithelioma, there is no increase of epithelial tissue; with regard to lupus, it exhibits an entirely different microscopic structure; it is an inflammatory process more or less; certainly lupus has not the slightest resemblance to sarcoma.

Dr. Hyde said that he had been much interested in the cases just reported; and it seemed to him that the proper performance

of the work of this Association should be a subject of congratulation among its members, and especially the opportunity of seeing such rare cases of disease as that presented by Dr. Duhring at the last meeting. He had himself had a case which should be classed with these; his misfortune was that the death of the patient only occurred a few days before he left Chicago, and he had not had the time to prepare the sections and report the case for presentation. A piece of the tumor which had been excised, had been examined by Dr. Heitzmann, who pronounced it a case of globo-myeloma or sarcoma. The case is of increased interest since he had reported it, as he had watched the symptoms going on until death, and had taken the time to follow up the case. He had reported the case to the authorities as one of death from sarcoma. It is to be noticed that no special reference was made to the case in the classification in his address of Saturday, except in its proper place under the sarcomata.

Dr. Piffard said that Dr. Heitzmann had referred to the pathology of lupus as if it had been conclusively settled; but if he refers to the usual authorities, he will find that it is very unsettled. He spoke of it as simply a form of inflammation, but this will depend upon what he understands by inflammation. Microscopically, he will find in some a diffuse infiltration of small round cells; in others giant-cells; in some, aggregated in nests, in still others, infiltrating, and associated with a varying amount of inflammation, which is characteristic. We have different forms of lupus, which differ widely; he could not see any connection between those having small round cells, and others containing the giant-cells or myèloplaxes of the French authors, such as are also found in syphilis, phthisis, and other diseases.

Dr. Hardaway said that he must confess himself much interested in the discussion of his case. From a clinical standpoint, he was himself inclined to regard it as a case of lupus, and for this reason adopted the name by which it is announced in the programme, simply terming it a pigmented neoplasm. He noticed the resemblance to Dr. Duhring's case from the written description. He could not understand the prognosis given by Dr. Heitzmann. The case had gone on for ten years; the first infiltrated plaques upon the forehead were in the same condition

as they were years ago, except that they appear to be undergoing involution. He promised to report from time to time the future progress of the case, in order to follow up the natural history as far as possible.

Dr. Hyde regretted very much indeed that Dr. Hardaway was absent last year, and also that the speaker himself was not present when Dr. Duhring presented his case. This shows the importance of attending regularly the meetings of the Association. During the discussion of this case of Dr. Hardaway, he had been struck particularly with its resemblance to Dr. Duhring's case.

AFTERNOON SESSION, THREE O'CLOCK.

Dr. Robinson read a paper on The Nerves of the Skin.

Dr. Heitzmann, in opening the discussion, said that it was only a little over a month since Dr. Robinson had shown him these specimens, and when he examined them, he was simply amazed; they furnish the solution of a puzzle, where we had none before. The general opinion as to the termination of the skin-nerves is, that they form bulbs; beside the Pacinian corpuscles, we know that there are end-bulbs, described by Meissner, Wagner, and others; but the actual mode of termination of tactile nerves within the bulbs was not known. Dr. Robinson has settled this question. Our Association must be congratulated upon first listening to such a paper, but a little credit was claimed by the speaker for inducing Dr. Robinson to bring it before the Association. In fact, he could corroborate every word that is contained in this communication. What the lecturer had discovered upset all our previous ideas on the subject. It was formerly supposed that the nerves terminated like buds, and that impressions were conveyed backward from these papillæ to the nerves; but much difficulty existed with regard to the Pacinian corpuscles, which are generally found in the deeper layer of the derma, and in remote situations, like the mesentery, and other situations in which ordinary sensation is not present, as in the periosteum of the petrous portion of the temporal bone.

Before hearing Dr. Robinson's explanation, he could never understand why they existed in these places. We knew that many medullated nerve-fibers end in plexuses, but he regarded

the formation of a loop as just as much a termination of a nerve in the case of the Pacinian corpuscles as in the other; the new fact is that they uniformly end in a plexus, and that one nerve enters the bulb, but another always leaves it, and that there is at the point where the bulb exists a plexus; an apparatus for condensing the nervous impression, like the electrical apparatus. He repeated that he would answer for every word that the lecturer had said, and he wished to express his admiration of the paper presented.

Dr. Piffard merely wished to endorse Dr. Heitzmann's remarks, and to state that we are very fortunate in having in the Association those who are able and willing to conduct such researches, which must be a labor of love, and therefore deserve full consideration and appreciation.

Dr. Hyde said that he could only repeat, on the part of all who have heard the admirable paper, their satisfaction and pleasure at witnessing such admirable work.

Dr. Robinson said, in conclusion, that he had hesitated very much before bringing this subject before the Association, for fear that it might not interest the members. He was very glad at its kind reception, and that it was found of any interest whatever. He felt that the truth must come out at some time; it is a duty to ourselves to state the truth, and to look for justice to the future. He invited the members to examine the specimens which he would present in the morning.

Dr. J. C. White, of Boston, read a paper on the Question of Contagion in Leprosy.*

DISCUSSION.

Dr. Rohé said that a few years ago he had reported two cases of leprosy which had come under his observation, and he recalled a third case, not yet reported. The first case was a man, a native of New York, who went to Cuba, and resided there from eight to nine years, and then returned to this country, and lived in Baltimore. A number of years after his return, he thought fourteen, he first manifested symptoms of leprosy. Between two and three years after the symptoms first appeared, he came under Dr.

* Published in the *Amer. Jour. of the Med. Sci.*, Oct., 1882.

Rohé's care. There was no doubt about the disease; it was a typical case of tubercular leprosy. The man was a liar. He gave one history to the speaker in Baltimore, and afterward went to New York, where he gave another history to Dr. Fox; but it is probably true that the period of time which elapsed, from his leaving Cuba, where there were lepers, and the first manifestation of the disease here, was about fourteen years. The patient subsequently died in New York.

While attending this case in the hospital in Baltimore, in 1878, another patient consulted him. A woman, a native of Maryland, had gone in 1855 to New Orleans, where she had yellow fever, but recovered. She subsequently traveled through the South, and returned to Baltimore in 1866. In 1869 she was pregnant with her last child, and while pregnant, the symptoms first manifested themselves, appearing first as large bullæ particularly. This case was published in the *American Journal of the Medical Sciences*, in July, 1878. The woman died in 1878 or 1879. The child which she was carrying when the symptoms first appeared, was a very fair little girl, when seen in 1878. Subsequently, on his return to Baltimore, he had searched for the little girl, and found that she had had scarlet fever, but no evidence of leprosy. The husband of the woman had lived with her and cohabited with her for nine years after the appearance of the leprosy, but exhibited no signs of the disease himself, and no member of her family had shown any of its manifestations. Dr. Rohe believed that for a time the man Brown, the first case, had lived in the same section of the city, but how near, he had not been able to discover. Of the diagnosis there can be no doubt; Dr. Atkinson also saw the cases. They were both typical cases.

In 1879 he had visited New Orleans, and saw a case afterward published in the Board of Health Reports of Louisiana, coming from Tèche parish, one of the infected parishes. A point of interest in the history of the disease occurs in this connection. Among the alleged origins of leprosy in Tracadie, is stated to be the arrival of some creoles from Louisiana, and among them was the family of a Frenchman from St. Malo, in France. The first case that occurred in Louisiana was that of a Catholic priest who had been ministering to these patients in the Tèche parishes; he

was never confined in a hospital, but he was seen by Dr. Brown, who pronounced it a case of leprosy, and he died within a month.

As to inoculation, he found it hard to believe that a disease like leprosy could be inoculated; and the cause assigned by the doctor in the Sandwich Islands, the pricking of a pin, is very doubtful. Such slight lesions are so frequent, and where the period of incubation extends over a year, there may be a question as to the exact time and manner of inoculation. So far as the bacillus lepræ is concerned, he could not offer an opinion from personal observation. The practical objection to the bacillus theory, is the difficulty in seeing any likeness between leprosy and the ordinary contagious diseases. The period of incubation varies from one to sixteen years; no other disease shows such variation. Then, again, we must admit inoculation as the principal method of communication, but he had not been able to satisfy himself that leprosy is inoculable in the ordinary sense. That it may be inoculated is possible, but the only experiment that could settle this point must be made upon human beings. As far as the danger from this course is concerned, he would be willing to be inoculated with the bacillus lepræ, if he were willing to be inoculated with anything from another person. He had reached the point where he could say that he did not know what causes leprosy.

Dr. Piffard could not understand why so many authorities regard leprosy as non-contagious, if they have read the report of the Royal College of Physicians upon this subject, and regard the writers of it as capable observers, and worthy of credence. From the time that he read that report, he was convinced that leprosy was most certainly capable of transmission in some way or other; not in the way scarlet fever is, perhaps, but in some way.

In 1843, a child belonging to British Guiana was inoculated by being vaccinated with matter from a leper; subsequently it came to this country, was received into Bellevue Hospital, and died there. Another case was subsequently admitted, and lived there two years, and died. Here were two cases which came in contact with hundreds of others. This occurred sixteen years ago—since then only two cases have been observed in the entire

State of New York. One of these had been associated with lepers in Mexico. The other was presented by Dr. Bulkley before the New York Pathological Society. It had never been outside of New York, and there were no assignable means of acquiring it from the former cases. These few cases show that there is very little danger of communicating leprosy in the ordinary way, like the ordinary contagious diseases, for instance.

The speaker claimed, as long ago as 1876, that this disease is inoculable, if the blood or secretions are brought into contact with a healthy person by inoculation, just like syphilis; and this is the usual means of transmission. These are the methods of communicating the disease, in which he understood Dr. White as agreeing with him.

Dr. White also believes the statement of Dr. Fisher, in charge of the hospital at Honolulu, who claims, in his report to the Board of Health of the Hawaiian Islands, that leprosy is only an old outgrowth from syphilis. At the meeting last week of the New York County Medical Society, the speaker took pains to combat the views of Dr. Fisher, at the request of the President of the Society. In preparing this communication, as a committee on the subject, he had sent circulars all over the country, to medical journals, and to members of this Association. This committee had a reply from only one of the members of the Association, Dr. Wigglesworth, of Boston, who said that he believed that there was a case in the hands of Dr. White. He had received a letter from physicians in Louisiana, and heard of some cases which turned out to be psoriasis. The committee therefore concluded that there must be only one case in this country!

Dr. Hardaway said that with regard to the nature of this disease we have evidence of the most contradictory sort, of reliable observers some pronounce it contagious, others are equally positive that it is not. When we learn the natural history of the disease better, we may learn that there are periods in which it is contagious, and at others not. It also appears to be hereditary just like syphilis. In some stages it may be contagious, in others hereditary. We may learn that at some times the disease may be active, and at others quiescent, and that it has distinct periods

of development. In the course of time the virulence of the disease may wear out, and this may explain the fact that intimate connection with the disease fails to communicate it.

Dr. Duhring said that from reading reports of cases, his attention of late had been much more strongly drawn to the subject of the contagiousness of leprosy than before; there is a good deal of evidence pointing that way, but further than this he did not feel warranted in making any statement. The time has not yet arrived for making any positive decision. He asked with regard to the Cape Breton cases, if the reporter had included those of James Campbell and Neil McLean?

Dr. White said that he had.

Dr. Duhring stated that he had received a letter from Dr. Fletcher, asking his opinion upon these cases. He had been impressed with the careful manner in which the notes had been drawn up. He would not present this communication to the Association as nearly all of the information had been published. He believed that the main points are contained in Dr. White's paper.

Dr. Atkinson said that he only would express his unhesitating belief in the contagiousness of leprosy; he finds no obstacle in the slowness of development of the poison. There is almost a perfect analogy in syphilis. Slow development, impossibility of communication by atmospheric influence, or ordinary intercourse. We associate with syphilitic patients in the hospital, but do not acquire syphilis, and there is no contagious disease slower in its development, or more chronic in its course. He could understand why it is so little liable to communication, and most likely to be acquired by those in immediate intercourse with lepers.

Dr. Hyde said that he had not the same confidence that Dr. White had, that the contagiousness of leprosy is so definitely stated in the Hebrew Scriptures. The leper, it is true, was ceremonially unclean, but so was a woman while menstruating, or the man who had a gonorrhœal discharge, or a man who had touched a dead body. The leper passed along the street, crying, "unclean! unclean!" so that others might avoid him, not because he had a contagious disease, but in order that they might not be ceremoni-

ally defiled. We now know that psoriasis, scabies, and other skin diseases were confounded with leprosy, at that time. We have evidence of this in the cure of Gehazi, by Elijah. In referring to an article by him upon this subject, the editor of the *Medical and Surgical Reporter*, of Philadelphia, said that he was wrong, but did not state why.

With regard to the bacillus lepræ, he had been much interested in Dr. Schmidt's paper which had been publishedd in the CHICAGO MEDICAL JOURNAL AND EXAMINER, and in the specimens also. He inquired if Dr. White had seen that paper.

Dr. White said that Dr. Schmidt had simply failed to find the bacillus lepræ.

Dr. Atkinson said that Dr. Bermann, of Baltimore, had asked Dr. Schmidt to send him some of his preparations, and some he had found full of the bacillus.

Dr. Hyde.— The paper of Dr. Schmidt and the sections, were sent by the author to a committee in Chicago, and were referred by the committee to Drs. Fenger, Curtis and himself. The great care and patience with which the preparations were made, was very evident. The speaker went over the specimens, and found in some a number of bacilli, but in others there were none. In every case in which these bacilli were found, there had been an open wound or the slide had been exposed to the air; in no single instance, in which a section of a tubercle had been kept from the external air, and carefully mounted, was there any bacillus lepræ to be found. He therefore concluded that it is a myth.

Dr. White said that Dr. Hyde must admit that he simply failed to find what others claim to have found. He had no doubt that Dr. Schmidt is a truthful and able observer, but no one would say that these other gentlemen were not the same. We are in the position of having one observer fail to find what many others of equal reputation have succeeded in finding. Koch and Cornil and others affirm the existence of the bacillus lepræ.

Dr. Atkinson did not consider it as a matter of chance, but one of skill and experience. In the specimens that he exhibited at Niagara Falls, carefully prepared by Dr. Bermann, these bacilli were shown perfectly. After reading Dr. Schmidt's communication in the CHICAGO MEDICAL JOURNAL AND EXAMINER,

he examined a portion of a tubercle which he cut out of the lobe of the ear, which had not ulcerated. He was willing to stake his life on the fact, after an examination of this specimen, that in the tubercles of leprosy and the neighboring parts, there is a bacillus that is not due to exposure to the air, but is developed in the new growth. The finding of this bacillus is not a mere matter of putting a section under the microscope and looking at it, but of properly managing the light and the method of examination. The bacillus lepræ exists; whether it is the cause of the disease or not is another matter.

Dr. Rohé said that he was familiar with the paper of Dr. Schmidt. He could state that no one could know Dr. Schmidt personally, without being convinced that he never says anything that he does not absolutely believe to be true.

Dr. White, in conclusion, referred to the experience of one man, Prof. Koebner, who for three years examined cases of leprosy without finding any, but now finds bacilli in every one. What makes the difference? There is the same careful, conscientious man as before; but it is simply experience and skill. If we throw out these results because a few are unable to obtain them, we should likewise throw out the result of the study of the minute anatomy of a great portion of the human frame, because there is still some difference of opinion with regard to it.

EVENING SESSION.

Dr. C. Heitzmann, of New York, made some remarks on the use of ergot in skin diseases.

DISCUSSION.

Dr. Robinson said that he saw no reason for changing the opinion he had previously expressed. A great many cases of acne had been benefited, but no cases had been cured. He believed that ergot could assist local remedies, as it seems to act upon the arterioles and capillaries, and perhaps more upon the muscular fibers of the arterioles and the erector pili muscles of the skin. It does reduce hyperæmia and diminish the number of acne spots, if not causing a complete disappearance of the eruption.

Dr. White inquired if ergot was used alone in the cases.

Dr. Heitzmann said that he agreed with Dr. Robinson that ergot only aids, and that it is necessary to the cure to use other remedies.

Dr. White asked what benefit is obtained from ergot more than from local remedies alone?

Dr. Heitzmann said that after using local remedies without success he had obtained a cure by administering ergot in addition. After using the ergot, the acceleration of the cure was great; he did not attempt to explain the cause.

Dr. White.—The physiological action of ergot upon the involuntary muscular fiber is known, and it has been used in many congestive affections; but it seems that it is just in acute hyperæmic disorders of the skin that Dr. Heitzmann has observed that it has no power; but in so ill-defined a disease as pruritus, and in so uncertain a disease as acne, he had found it to do the greatest good. The speaker had given ergot only in cases of pruritus, but he could not say that any of his cases had been benefited by it, and he could not understand how any one could say it. He could not see how it would be possible to determine this point; every case is a rule unto itself. The disease is a mild one and may terminate at any time; we can not positively say that we have abbreviated it a single day. Acne runs such an irregular course that he could not see how ergot could be of any good. He had a case of urticaria which he had been in the habit of showing to the class, to illustrate how many remedies may be given in urticaria. The case lasted nine weeks; the woman returned from an extended trip in the south, no better. The day after her return, the hottest day in the year, the eruption disappeared and has never returned. Had he given ergot as the last drug, the cure would have been attributed to it. Unless a large number of cases were presented, and especially a series in which the drug was administered alone, it could not be possible to arrive at any conclusion, especially with regard to such a disease as acne. He had considerable experience in the disorder, although he never gives internal treatment, and until statistics were presented showing success better than his own, he was not likely to change.

Dr. Piffard said that he had been present at the New York

Dermatological Society when Dr. Denslow read the paper referred to, and shortly afterwards presented a case before the Society which had lasted about a year and in which a number of remedies had been tried; it was a bad case. Dr. Denslow took her under his care; he gave her ergot and used mercurial ointment locally; the same ointment had been previously used without result. Shortly afterward Dr. D. left the city and she returned; and he had been very much impressed by the marked improvement. He left off the mercurial ointment, but kept up the ergot until she was completely cured for the time. The time went on, four months perhaps, and she returned with the same eruption on her face; she was given ergot and the face cleared again. Now when the disease comes back, she goes at once to the ergot without consulting him. This case can be taken as convincing as to the usefulness of ergot. In this way therapeutic experience is built up. In another case he had been obliged to discontinue arsenic on account of albuminuria; and in erythema and rosacea he had not seen it do good, but in cases where there was a doubt whether it was erythema nodosum or rosacea, it had always been serviceable.

In prurigo he had tried it, and in some cases where the crops came out from time to time; after the ergot was given no more crops appeared. In psoriasis he had given it because he had used a drug, *ustilago maidis*, in ichthyosis, a similar disease.

He was certainly very glad to hear the experience of Dr. Heitzmann, especially as he is usually skeptical about the effects of medicines given internally in cases of skin disease. Dr. White inquires, how can we tell whether the results obtained are the effects of the drug or not? In just the same manner as observed with regard to local remedies.

Dr. Robinson inquired as to the condition of the uterus in the cases benefited?

Dr. Piffard said that the uterine condition was bad; he sent her to Dr. Castle, who made an examination and treated her locally. The acne got well long before the uterus did; in fact the uterus is not cured yet.

Dr. Hardaway said that he had used ergot seven or eight years ago for a certain class of cases. He thought that he had seen it

do good in erythematous eczema; and it is his habit to give it in large doses (3 drchms. fld. extract) in eczema, and believes it worthy of further trial. A number of cases have recovered apparently from the effects of the ergot; but he had used it combined with local measures. In the treatment of rosacea, the use of ergot by hypodermic injection is an old treatment; it was recommended at least ten years ago; he had used it locally in this disorder for a number of years, and also in eczema. He had been in the habit of combining twenty or thirty grains of ergotine with the diachylon ointment.

He had also treated urticaria with ergot, very chronic, inveterate cases, but had had no result whatever. In one case, after going through the Materia Medica without effect, he tried with ergot, but also with no results. This patient had also alopecia areata—a rare combination. He afterward took a sea voyage and returned well.

He had never been able to satisfy himself that he had obtained any result from ergot in purpura; he had also used it in peliosis rheumatica, without benefit. In acne he had used ergot; he had also used Vleminckx's solution locally with splendid results. He had seen results from this solution which he had not been able to obtain by other means. Possibly the good effects observed by Dr. Heitzmann, were due solely to the application of this solution.

Dr. Duhring inquired the number of cases of psoriasis in which it had been tried.

Dr. Heitzmann said only three or four.

Dr. White, in reply to a question, said that he never used specific remedies for acne. The great majority of cases need medicine internally, but it is not given for any specific action on the eruption.

Dr. Hyde had used ergot in purpura a number of times, and it had seemed perfectly valueless. He had several very interesting cases during last year and this year. He had used Squibb's ergot exclusively, but without effect. With regard to the theory of Dr. Denslow as to the state of the muscles in cases of acne, it seems that persons even with the most vigorous muscles in early life have acne, and in after life, when the muscles lose their tonicity, we see less.

Dr. Heitzmann said that he thought that what he had said was cautious enough. Dr. White is correct in saying that if we wish a thorough report, we must have a series of cases. This he would not deny; he simply had said that he had seen certain results in a number of cases, and that is all he intended to say. Truth conquers finally. We do not know how we cure a patient; we are only certain that we may cure them. His only desire was that the drug might have a further trial. We need not rely upon old world methods, for we are in this country at least greatly ahead as for as dermatology is concerned. If ergot is capable of assisting other remedies, as stated by Dr. Robinson, it is not without value in skin diseases.

Dr. White said that he had not criticised the remarks of the lecturer, but his method; he would not himself have brought such a report before this body. He would not, for instance, have given ergot in combination with other treatment, but would have given it alone before reporting its effects. Dr. Piffard's case is one to the point; we should have the effects of a remedy alone and not mixed up with other treatment. The report of Dr. Heitzmann would have been much more convincing if the drug had been given by itself.

Dr. I. E. Atkinson, of Baltimore, presented a communication on Syphiloderma Papulosum Circinatum.*

DISCUSSION.

Dr. Heitzmann simply expressed his pleasure at hearing this admirable paper. The only similar case that he knew of is that depicted in Kaposi's Atlas. He had not met with any case of the kind himself.

Dr. White reported two cases of the disease, both of which he had seen on the same day; one a man, the other a woman. Neither exhibited any pigmentation; they were probably in the early stage of the affection. Being submitted to the class at Harvard, they were pronounced without hesitation to be ringworm. They looked like typical cases of tinea circinata. Nothing could be more deceptive than these cases, but a closer examination revealed their syphilitic character. Pigmentation rarely accom-

* Published in the *Jour. of Cut. and Ven. Dis*, Oct., 1882.

panied or followed this form of disease, in the cases he had seen. In one case he had much doubt about it, until he had submitted it to microscopic investigation; he would have been obliged to agree with the diagnosis of the class, if he had looked simply to the face-lesion, without further examination.

Dr. Atkinson referred to a skin disease in negroes; the speaker thought that the study of these disorders in the negro presents great difficulties. Syphilitic affections, especially, assume very peculiar forms. He inquired if the lecturer could always satisfy himself in his diagnosis, whether they are syphilitic or not?

Dr. Atkinson said that he generally could; the papular varieties especially. The papules are very often pointed with pus, which shows like a pearl through the dark skin. He had never seen it depicted with the absence of pigmentation at the point of the papule, but had seen it, however, where a little pus could be extruded by pressure.

Dr. Taylor inquired how many cases the lecturer had seen of the disease he had reported?

Dr. Atkinson said that he had reported five or six, and had a recollection of several others.

Dr. Taylor asked the size of the papules when the involution began in the center?

Dr. Atkinson. They were probably the size of a small pea, and a pigment deposit might follow, spreading from the center, very much like erythema nodosum.

Dr. Taylor asked what regions were affected?

Dr. Atkinson. On the face, especially, but he had seen one case in which the eruption was quite as copious as in the patient of Jullien, where the body was nearly covered with it. In the majority of cases, the only remarkable thing about the lesions is the concentric arrangement.

Dr. Taylor asked if he correctly understood the lecturer to say that the late tubercular syphilide has no tendency to this extension, like ringworm?

Dr. Atkinson said; yes, the late papular-circinate lesion is an open lesion.

Dr. Taylor said he thought that this is not always so; he regarded the experience of Dr. Atkinson as exceptional. The

speaker had pursued this study for years, and thought that it is not the nature of the early papular syphiloderm to run this course, but the late papular syphilide. There is a decided predilection for this form, and a decided preference for the face, knees and elbows. He could only himself recall six cases of the form of lesion described.

There are diagnostic points about these cases, in the face, which have not been spoken of, and may help: There is never any inflammation of the hair-follicles; sometimes the hair will fall out, but there is no appearance such as is seen in tinea tonsurans. When it comes on the body, on the chest, it does not cover the pubic region, as tinea does, and it also appears on the knees.

The experience of the lecturer is unusual. The lesion in the face the size of a half-dollar to a dollar, and pursuing this crescentic course, is rare; he could not recall a case in which he had ever seen such a patch run larger than a dollar. With reference to the discoloration, he called attention to this point, which he had noticed: that on the face the border of redness will remain for a long time, whereas on the body it fades out; a point connected with the circulation.

Dr. Rohé said that a colored woman came to his clinic in Baltimore with a very peculiar eruption over the ear. He examined her, but refrained from making a diagnosis. She returned within a few days He still could not classify the lesion under any form of skin disease that he knew of. He suspected syphilis, found cicatrices in her mouth, and then referred her to the venereal department, where it was pronounced to be a case of syphilis. This lesion presented almost the identical characters described by the lecturer. Papules small, and with small acuminated collections of pus at the apex of each papule. He could not diagnosticate it as any form of pure skin lesion, as he had not seen a case of this form of syphiloderm before; but this instance was recalled to his mind upon hearing Dr. Atkinson's remarks.

Dr. Hardaway said that those who had seen much of skin disease in negroes, would endorse the lecturer's observation, that there is a tendency to pustule formation, a pyogenic proclivity, in papular lesions.

Dr. Hyde said that he had not had much experience with skin

diseases in negroes, but he had seen the peculiar type of eruption referred to, and it struck him as being the best description he had ever seen.

Dr. Atkinson said that it may be that in negroes this form of eruption is more common. He had seen six or eight cases—possibly a dozen; two new cases he had seen in the last six months. In all was seen a very close resemblance to ringworm; this resemblance is shown very graphically in the photographs taken from the cases.

Dr. Taylor said that he had seen syphilitic patches as large around as a goblet. It commences as a tubercle, and looks as if it were going to be extensive; but as it extends it becomes more superficial, and it grows redder. He regarded it as not an early lesion, but as tubercular at the beginning.

Dr. White said that in the case he had referred to, there was no tubercle, or even a papule, in the case; it looked more like erythema, as it was more superficial; in fact, its appearance was most like ringworm. There was no positive proof; in not one case could he get a good history of infection, but he regarded it as absolutely an early manifestation.

Dr. Atkinson said that the way he had found one case was, that it had been brought to him as a case of ringworm without any fungus.

Dr. Taylor said that Dr. White refers to what he had described as the erythematous syphilide. There are three grand varieties: erythema, papule, and tubercle; the latter belong to the late manifestations. He did not, however, mean to criticise the doctor's remarks. He inquired if there had been much infiltration in the cases?

Dr. Atkinson said that there was a distinct ring of infiltration around the growth, like ringworm. In the cases of general eruption, it was very interesting to watch this feature; he could hardly convince himself that it was syphilis.

Dr. Taylor said that his object in asking the questions was to find out whether it would be necessary to devote a whole chapter to this lesion, or if it could be classed with roseola, papulæ, and tuberculæ.

Dr. White, of Boston, chairman of the committee on Statistics, read his annual report, which was adopted and referred for publication.

AN EXPERIENCE IN SKIN DISEASE.

Dr. White related an experience in skin disease, in the treatment of corns and warts. A lady who had been under treatment for some time, without effect, for large warts upon the hands, was cured by the use of a mixture of salicylic acid, cannabis Indica and collodion. He had since used the compound with very good results; usually ordering half a drachm of the acid, ten grains of cannabis Indica, and one ounce of collodion.

Dr. Piffard said that this formula had been published by Dr. Train Green, of Pennsylvania, in the *Medical and Surgical Reporter*, some weeks ago. He had tried it himself, without seeing the slightest effect from it.

Dr. White said that in fifty cases, he had never seen it fail. It should be painted on in successive coats, at short intervals, until three or four coats are given. The next day, the corn or wart is easily scraped off.

Dr. Piffard said that he preferred the cautery.

Dr. Hardaway had passed the electrical needle through the base of the growth, in the case of warts, and caused them to disappear.

Dr. Piffard read the following communication from Dr. Sherwell, with the notes of a

CASE OF PELLAGRA.

The enclosed is the history of a case in Dr. G. H. Atkinson's service, and under the care of A. H. Brown, resident L. I. C. Hospital. It is, in my opinion, undoubtedly a case of pellagra, from the rarity of which in this country, I am induced to send it to be included in the list of material at your meeting.

When first seen by me, toward the beginning of July, the eruption, only at that time present on the forehead, cheeks, nose and ears, was decidedly erythematous, but I was in doubt as to its diagnosis; whether severe erythema eczema, or erythematous lupus running an extremely rapid course. Have not seen the case

many times; probably four in all. At the consultation previous to the last, could not give positive diagnosis, owing to the fact of the appearance of lesions over the extensor surfaces of the hands and feet, but decided on my last visit that it must be a case of pellagra, as above stated. The skin lesions, and symptoms generally, correspond exactly with those given by all authorities on the subject.

The history is almost necessarily imperfect, as the patient is apathetic in mood now, and was probably never very intelligent. The possibilities as to purpura, or erythematous diseases other than the one claimed, have been carefully considered, and as positively excluded. The eruption on the back is of a different kind from that on other portions of body and limbs, and, I think, results from stasis by recumbent position.

S. SHERWELL, M.D.

Tommaso Caprile, æt. twenty-five; Italian; seaman. Born in Rapallo, near Genoa. Never lived in any other part of the country; never saw or heard of any one about his home having any disease like his. Lived on corn part of the time, but never saw any mouldy or black corn. Never had any skin disease before this time. Spot came first on the forehead, about January, 1882, and extended over the face, hands and body. Patient is despondent much of the time. Has not been at home much of late.

Had no peculiar sensations previous to or accompanying the appearance of the eruption, and no itching or peculiar sensations are present now.

Patient has suppurating glands about the sides of face and neck. Temperature has gone as high as 105½° at different times.

This morning there are fissures, and surfaces from which blood flows slowly.

G. H. ATKINSON, M.D.,
Visiting Surgeon.

A. H. MOORE, M.D.,
House Surgeon.

OFFICERS FOR 1882-3.

President.

DR. R. W. TAYLOR, of New York.

Vice-Presidents.

DR. I. E. ATKINSON, of Baltimore.

DR. A. R. ROBINSON, of New York.

Secretary.

DR. ARTHUR VAN HARLINGEN, of Philadelphia.

Treasurer.

DR. GEORGE H. ROHÉ, of Baltimore.

The next meeting will be held at Lake George, on *Wednesday*, *Thursday* and *Friday*, August 29, 30 and 31, 1883.

INDUCTION OF OFFICERS.

Dr. Hyde, before introducing the President-elect, said that upon assuming the duties of his responsible office, he had asked the coöperation and support of the members during his term of service; now, at the end of two years, he could say that he had abundantly received it, and returned his sincere thanks to the members for their aid and consideration. He would bespeak equal support for his successor, Dr. Taylor, who needed no introduction.

Dr. Taylor, upon taking his seat, thanked the Association for the honor conferred upon him, which was entirely unexpected. He could not state positively that this was the happiest moment of his life, but he fully appreciated the sentiments which actuated the members in their choice, and he was as happy, almost, as he could be. He accepted the duties of the office, and would try to discharge them as well as his predecessor had done, and begged for the same hearty co-operation on the part of the members.

THIRD DAY, SEPTEMBER 1.

A morning session was held, at which specimens were exhibited by Drs. Robinson and Heitzmann.

A business meeting was then held, at which the time and place of the next meeting were determined, and some private business transacted.

The session then adjourned.

Domestic Correspondence.

ARTICLE III.

NEW YORK LETTER.

[The following was accidentally omitted from the letter of our New York correspondent published in our last issue.—ED.]

You have all heard of the terrible Seguin tragedy. It has at least one more cheerful side. It has brought out the most heartfelt expressions of sympathy from all the members of the profession here. Every society has passed resolutions of condolence, and expressed the hope that Dr. Seguin will not withdraw from his work here, where he has taken so high a position. He will go abroad for the present.

The post graduate schools have opened, and are all doing well. The number of pupils is not very large—twenty to thirty—but it will doubtless increase.

We are to have a new weekly medical journal. The New York *Medical Journal and Obstetrical Review* is to drop its obstetrical appendix and come forth as a medical weekly. Dr. Foster, who will continue the editorship, is an excellent editor, though not a very strong writer.

Dr. Marion Sims gave a grand reception to Dr. Gross, of Philadelphia, recently. It was held at the Brunswick Hotel, and was a sumptuous affair.

A SEWER is being constructed through an old cemetery in this city, bringing human remains to the surface, with the possibilities reading all sorts of infectious diseases.

Reviews and Book Notices.

ARTICLE IV.—A SYSTEM OF HUMAN ANATOMY, Including its MEDICAL AND SURGICAL RELATIONS. By HARRISON ALLEN, M.D., Professor of Physiology in the University of Pennsylvania, etc., with a Chapter on Histology by E. O. SHAKESPEARE, M.D. Six sections, containing about 550 pages of letter-press, illustrated with 380 figures on 109 plates, many of which are beautifully colored. The drawings by Hermann Faber, from dissections by the author. Also 250 wood cuts in the text. $3.50 per section. Philadelphia: Henry C. Lea's Son & Co., 1882.

Each section of this work is contained in a cloth cover, rather artistic in design, and eminently adapted for use beside the cadaver, but rather inconvenient in the library. A work like this had been anticipated for some time by those aware of the rapid progress manifested of late in comparative anatomy. The best works on Human Anatomy were, in fact, rapidly growing old. The New Anatomy comes to us with unexpected features, the most remarkable of which is an interesting style. The latest discoveries of science are mentioned in its pages; and it is published in a large clear type and on the best quality of paper. However, for the sake of practitioners we would recommend the publishers to issue leather-bound copies in two or three volumes, separately, as the present style is inconvenient in the office. The part on histology is thorough, but too little of it seems original and so with the illustrations, which are almost too beautiful to be real. The same assertion would not be true of the plates of the second volume, "bones and joints," which are rather inferior in execution. But works of anatomy should be mainly illustrated by

dissections of the human body, and ordinary plates cannot teach much, and should not. The best recommendations would not do credit to this work, and the student of anatomy will be aware of its merits only after a practical use of it; but it certainly fills a wide gap and will be welcomed by all. H. D. V.

ARTICLE V.—SPEECH AND ITS DEFECTS; CONSIDERED PHYSIOLOGICALLY, PATHOLOGICALLY AND REMEDIALLY. By SAMUEL O. L. POTTER, M. A., M. D., Author of "An Index of Comparative Therapeutics," etc. Lea Prize Thesis of Jefferson Medical College. 12 mo., cloth, pp. 117, $1. Philadelphia: P. Blakiston, Son & Co., 1882.

This is a remarkably interesting little book, and, as a thesis, one of great merit, especially in this country, where preliminary medical education is recognized as deficient. The subject is treated in a most interesting manner, especially as to its history; and its bibliography has not been forgotten. In the treatment of stammering and stuttering the author recommends the *motor depressants*, gelsemium, conium, physostigma, lobelia, aconite, etc. Belladonna, hyosciamus stramonium and tonics have their indications also. A number of favorite methods in the hands of renowned quacks of the present day are mentioned and the author adds combinations of consonants and vowels for exercises.

This small treatise will be welcomed by all whose vocal organs or functions are imperfect in any degree; it will repay the curiosity of any reader and forms a valuable addition to the literature of the human voice. Although without statement to this effect, it appears that the present volume was intended as one of the Health Primers published by the same firm, and which have proven a valuable departure in medical writings. H. D. V.

ARTICLE VI.—SOCIAL EQUALITY; A SHORT STUDY IN A MISSING SCIENCE. By WILLIAM HURRELL MALLOCK, Author of "Is Life Worth Living?" 12 mo., cloth, pp. 212. New York: G. P. Putnam's Sons, 1882.

This, like other writings of the well-known author, is remarkable for its agreeable style, something which is becoming scarce in our days. That the principle which is the foundation of this

work, that social inequality is natural to the human character is false, is useless to argue. But the work is timely. It opposes a democratic reaction which menaces to destroy at a stroke a civilization which has been the outcome of centuries of patient work. Let the churches disappear; let the professions disappear; let the various trades follow, and give us the—say co-operative manufacture—the optimum of democracy; would life be worth living under circumstances where the fine arts could no longer exist? Mr. Mallock's book has been strongly criticised by the scientific press, probably because the work does not conform at all with scientific principles and is simply intended for the common reader, yet, we must grant that between natural selection and arch-æsthetism, between causation and spontaneity, the very foundations of science and philosophy are not at all settled, and we firmly believe that Mr. Mallock has written a timely and serviceable book, more appropriate perhaps in his country than here.

ARTICLE VII.—FISTULA, HEMORRHOIDS, PAINFUL ULCER, STRICTURE, PROLAPSUS AND OTHER DISEASES OF THE RECTUM; THEIR DIAGNOSIS AND TREATMENT. By WILLIAM HILLINGHAM, M. D., Surgeon to St. Mark's Hospital for Fistula and Other Diseases of the Rectum, etc. Fourth Revised and Enlarged Edition, with Illustrations. 8 vo., cloth, pp. 168. Philadelphia: P. Blakiston, Son & Co., 1882.

Of the few works exclusively written on this subject, this is surely one of the most valuable. We felicitate the publishers on the happy thought of reprinting it in a cheap form, which advantage every surgeon should avail himself of. Regarding the mooted question of the coincidence of fistula in ano and phthisis, the author says that such a thing is of frequent occurrence. He regards phthisis in that case as a complication of fistula, and an operation well conducted will be beneficial (he does not say curative). As to the injection of hemorrhoids with carbolic acid, although conversant with the subject, the author deprecates the injections. In forty-nine cases of cancer of the rectum treated with Chian turpentine, only two seemed somewhat benefited. Enucleation is sometimes a valuable mode of treatment. This book possesses a good deal of intrinsic value, embodying so much

of the experience of a single surgeon and is a worthy addition to a subject too neglected, in view of suffering humanity.

H. D. V.

ARTICLE VIII.—CLINICAL LECTURES ON THE DISEASE OF THE URINARY ORGANS. By SIR HENRY THOMPSON. Sixth London Editon, Illustrated with 73 Wood Engravings. An 8vo. Pamphlet of 175 pages. 75 cents. Philadelphia: P. Blakiston, Son & Co., 1882.

The author says in the preface: "It may be pardonable, perhaps, to add that I have had the gratification of finding it employed as a text-book in most of the medical schools of Europe, and translated for that purpose into the French, German, Italian, Spanish and Russian languages."

After such a work has reached its sixth edition, and has been presented to the profession in such a form, it would be unpardonable to be without it; and not only the specialist and the ordinary surgeon should have it under the hand, but it is a most excellent text-book for students. Its defects, which are worth mentioning, consist in some of the lectures being of a rather old date, and the prominence given to stone in the bladder being such that other diseases are almost overlooked. Dr. Bigelow's method is favorably commented upon, but the author refuses the name "litholapaxy," and substitutes the name "lithotrity at one sitting."

ARTICLE IX.—THE NEW MATERIALISM. DICTATORIAL UTTERANCES AND THE DECLINE OF THOUGHT. By LIONEL S. BEALE, F. R. S. Pamphlet, pp. 37. London: The Victoria Institute.

The primary object of the Institute is "to investigate fully and impartially the most important questions of philosophy and science, but more especially those that bear upon the great truths revealed in Holy Scripture, with the view of reconciling any apparent discrepancies between Christianity and science." The Darwinian or Monistic philosophy has conquered the English mind with such rapidity that it is high time that men like Beale arise in the effort to start Christian philosophy from its long

inanition. As the various pamphlets of the author are intended, we suppose, for Sunday-schools and for distribution among the totally ignorant in matters of science, they will impart to the readers a smattering of knowledge which should not be despised. However, the author's imperfect understanding of modern philosophy places his works beyond the reach of those who cultivate science for itself and have no time to throw away.

ARTICLE X. — CONTRIBUTION TO PRACTICAL GYNÆCOLOGY. (Illustrated.) By S. JAMES DONALDSON, M.D., Surgeon to Gynæcological Wards, Ward's Island Hospital. Part I.— PRACTICAL OBSERVATIONS UPON UTERINE DEFLECTIONS. Part II.—PRACTICAL OBSERVATIONS UPON DYSMENORRHŒA. 8vo. Pamphlet: pp. 134. New York: Trow's Printing and Bookbinding Co., 1882.

This is a funny monograph. The author challenges the world and gynæcologists, as well-armed he is, with a new pessary surmounted with a uterine stem, and pours a large amount of vituperation against the abominable practices of his contemporaries. Therein lies the practicability of his observations. Between the two we must say that we would rather follow the method of a Chicago gynæcologist and treat deflected uteri with plaster-jackets applied to the patient's back, than use the internal splint of Dr. Donaldson.

ARTICLE XI.—A MANUAL OF PRACTICAL NORMAL HISTOLOGY. By T. MITCHELL PRUDDEN, M.D., Lecturer on Normal Histology in Yale. 16 mo. Pp. 265. New York: G. P. Putnam's Sons, 1881.

This little book comes out without any allusion to microscopy, without any illustration of histological specimens, and has an appendix of 18 blank pages which the student is intended to fill with his own drawings. But for its deficiencies, it is practical enough, and resembles somewhat as many lectures as there are chapters. The merits of this book chiefly consist in the thorough description of the author's methods of mounting specimens and will prove most useful to students in that respect. Still it is doubtful whether medical students will ever learn much histology

when the short curriculum is overcrowded with so many other and more essential sciences. H. D. V.

ARTICLE XII.—A SYSTEM OF SURGERY. By SAMUEL D. GROSS, M.D., LL.D. Illustrated by upwards of 1600 engravings. Sixth Edition, thoroughly revised and greatly improved. In two volumes. 8vo., half Russia. Pp. 1194–1174. Philadelphia. Henry C. Lea's Son & Co., 1882.

In a time when works on surgery are being published at a wonderful rate, it is somewhat refreshing to see the old reliable come out in a revised form for the sixth time, and it is doubtful whether it will lose its prestige as the leading text book of surgery in the land. This last edition is up to the latest progress in the subjects of which it treats. H. D. V.

ARTICLE XIII.—THE EXPERIMENTAL METHOD IN MEDICAL SCIENCE. Cartwright Lectures of 1882. By JOHN C. DALTON, M.D. 12 mo. Cloth. Pp. 108. New York: G. P. Putnam's Sons, 1882.

These three interesting lectures have already appeared in some of the journals but have received a more dignified treatment in the elegant little volume under consideration. They will be read with pleasure, not only by the profession, but by all those interested in scientific researches, although they properly belong in the domain of Medical history.

BOOKS AND PAMPHLETS RECEIVED.

BOOKS.

Ninth Annual Report State Board of Health of Michigan, Year Ending September 30, 1881. Lansing, W. George & Co. 1882.

Index Catalogue Library Surg. General's Office U. S. A. Washington, Government Print. 1882.

A Manual of Hypodermatic Medication. Bartholow. Phila., Lippincott & Co. 1882.

Asthma. Pathology and Treatment. Salter. Wood's Med. Lib. 1882. Keener.

Social Equality. A Short Study in a Missing Science. Mallock. New York, Putnam's Sons.

Science and Practice of Me licine. Palmer. Vol. II. G. P. Putnam's Sons.

Diseases of the Rectum. Allingham. Blakiston, Son & Co. 1882.

Allen's Human Anatomy, Sections One and Two.

International Encyclopœdia of Surgery. Wm. Wood & Co. W. T. Keener.

St. Bartholomew's Hospital Reports, Vols. XVI and XVII. 1880 and 1881. Smith, Elder & Co. London.

Nitro-Glycerine as a Remedy for Angina Pectoris. Murrell. Davis. Detroit.

Therapeutics, Materia Medica and Toxicology. Wood. Fourth Edition.

System of Surgery. Gross. Vols. I and II. Phila., Lea's Son & Co. Jansen, McClurg & Co.

Pharmacopœia of the United States. Sixth Decennial Revision. 1882. Wm. Wood & Co. W. T. Keener, Chicago.

Rheumatism, Gout, and Some Allied Disorders. Longstreth. New York, Wm. Wood & Co., Lib. 1882. Chicago, W. T. Keener.

Anatomical Technology as Applied to the Cat. Wilder and Gage. Chicago, A. S. Barnes & Co.

The Uterus, Ovaries and Fallopian Tubes. Courty. Translated by McLaren. Phila., Blakiston, Son & Co. Chicago, W. T. Keener.

The Diseases of Women. Hewitt. Fourth Edition. Phila., Blakiston, Son & Co. Chicago., W. T. Keener.

Practice of Medicine. Bartholow. New York, D. Appleton & Co. Chicago, Jansen, McClurg & Co.

Hand-Book for Water-Drinkers. Austin. Boston, Lee & Shepherd. Chicago, Jansen, McClurg & Co.

Guide to Therapeutics and Materia Medica. Farquharson. Phila., Lea's Son & Co. Chicago, Jansen, McClurg & Co.

Vaccination and Small-Pox. Hardaway. Chicago, Jansen, McClurg & Co.

Speech and Its Defects. Potter. Phila., Blakiston & Son.

Practical Laboratory Course in Medical Chemistry. Draper. Wm. Wood & Co.

Slight Ailments, Their Nature and Treatment. Beale. Phila., Blakiston.

Medical Electricity. Bartholow. Second Edition.

King's Manual of Obstetrics. Jansen, McClurg & Co.

Diseases of the Ear in Children. Troeltsch. New York, Wm. Wood & Co. Chicago, Jansen, McClurg & Co.

Diseases of the Skin. Duhring. Third Edition. Phila., Lippincott & Co. Chicago, Jansen, McClurg & Co.

Principles and Practice of Surgery. Ashurst. Third Edition. Phila., Lea's Son & Co. Chicago, Jansen, McClurg & Co.

Cornil on Syphilis. Translated by Simes & White. Phila., Lea's Son & Co. Chicago, Jansen, McClurg & Co.

First Aid to the Injured. Shepherd. New York, G. P. Peterson & Co. Chicago, Jansen, McClurg & Co.

Medical Register and Directory, City and County of Philadelphia, P. Blakiston & Son. Chicago, Jansen, McClurg & Co.

Microscopical Morphology. Heitzmann. New York, J. Vail & Co. Chicago, W. T. Keener.

SUPERVISED PROSTITUTION.—The average number of examinations of individual women made in England during the year 1881 in the several places subject to the Acts was 23.65; in 1880 it was 23.50. One thousand, three hundred and fifty nine women were registered for the first time during the year, but a total decrease of 3,056 has taken place since the Acts came into operation. The number of brothels was reduced during the year by 44, being a decrease of 833 since the Acts came into operation. During the year, 489 prostitutes are known to have come into the several districts from unprotected places; 322 of these were found to be diseased on their first medical examination. In 1881, 1,827 were removed from the register, of whom 863 left the districts under the protection of the Acts, 51 married, 234 entered homes, 659 were restored to friends, and 20 died.

MR. FRANCIS SEYMOUR HADEN, the distinguished member of the Royal College of Surgeons in Great Britain, who has attained a reputation as an etcher equal to that of Rembrandt, was recently given a reception in one of the Chicago clubs. He stated that his first achievements in his art were the fruits of the employment of his leisure moments in his practice. Speeches of welcome were made on the occasion by Dr. Chas. Gilman Smith, Dr. James Nevins Hyde, Mr. Ed. G. Mason, and others.

Editorial.

ENGLISH CRITICISMS OF AMERICANS.

The English nation has adopted several different postures toward this country and its inhabitants, since the former ceased to be its most prosperous and promising colony, and the latter its most humble subjects. It began at an early period by waging actual warfare, whose net results to the mother country in the loss of pounds, shillings and pence it is impossible to compute. To this period of hostilities, there succeeded a series of years in which the United States and its people were either completely ignored in Great Britain, or regarded with a species of contempt which there was not even a pretense of concealing. The hideous caricatures of American life and manners drawn by the pencil of the late Mr. Chas. Dickens, of whom, by the way, it is said that he never drew the portrait of an English gentleman, were accepted as truthful by the mass of his trans-Atlantic readers. His example was followed by a host of less popular authors among his countrymen, who had either never visited this country or whose knowledge of it was limited to a few weeks' visit to the city of New York and a trip to Niagara Falls. His latest disciples in this species of elegant literature, are two English story-writers, named Besant and Rice, who seem to be engaged in spicing the same stale meats for the palate of their countrymen. They have recently portrayed, as a candidate for a seat in the British House of Peers, a filthy, ignorant and otherwise disgusting fictitious character, whose native place they fix in "Canaan City, New Hampshire." This spectacle of an American citizen with the dress and manners of a "yahoo" seems to have unfailing attractions for the British public.

But the latest posture of the refined and educated among the English people is, as regards this country and its inhabitants, one in which animosity, ridicule and contempt seem to have given place to criticism. Decidedly this is more gracious and promising. For the reasons which lie at the basis of the change, we have not to go far nor search deeply. We are growing rich and strong. Nowhere in the world are wealth and power more worshiped than in that very "tight little isle." As a result, in place of their shot and in lieu of their sneers, we are tendered—advice!

Among the more recent of the English critics who have visited these shores, and certainly among the most distinguished, is Mr. Herbert Spencer. Here is a man pre-eminently honored among his contemporaries on both sides of the water for his profound learning, his literary acquirements and his philosophical writings. The latter will remain a monument to his intellectual greatness when half the books written in the nineteenth century are quite buried in oblivion. Naturally we listen to what he says of us with great respect and attention. His words are reproduced in the daily journals; and we notice also that some of the medical periodicals have made extracts from his farewell address.

We confess that, as we weigh him carefully, we can do no more than set down the distinguished speaker in the long list of English critics of American life and manners who have spoken with the most imperfect knowledge of their theme. Mr. Spencer has made the conventional trip, and done the conventional thing. He too made his hasty visit to a few of the Eastern cities, visited Niagara Falls, and made the usual diversion from the platitudes of an after-dinner speech to tell us, just before re-crossing the Atlantic, how very fearful he was of our future! Were this merely a political future, the subject might be relegated to the political press; but it is our physical future which distresses Mr. Spencer. He describes "degenerative tendencies in American life;" "extreme persistent activity;" "early turning gray of the hair;" "nervous collapses;" "cripplings by overwork;" "serious physical mischief;" "damaged constitutions;" "injury to posterity," and a great deal more of the same sort.

Now all this is, in the main, true of the people whom Mr.

Spencer happened to meet here; but it is none the less true of the people whom we meet in all the busy centers of civilization, London, New York, Chicago, Paris, Philadelphia. These are the bitter fruits of intense competition, overcrowding and avarice: the stress and strain of the struggle for existence among a mighty multitude of eager men. If he meant it to be inferred that this was, on the whole, more conspicuous in America than in England, the distinguished speaker was certainly in error. For every one illustration of this "degenerative tendency" he can find in the United States, we will point him to ten in his own country. For every type of nervous collapse he can point out in this people, we can refer him to a dozen whose histories are recorded in the writings of his own countrymen. What he says is not new to any of us here It has been told us in fully as elegant English as Mr. Spencer's, by American physicians, more particularly by neurologists. The representatives of our profession in Great Britain have none the less preached the same story again and again to their own brethren on the other side of the Atlantic.

The picture, indeed, presented us by Mr. Herbert Spencer in his late attitude, is not without its ludicrous and even absurd aspect. Think of it! Here is a man telling us that we are working too hard, and as a consequence physically degenerating, while the country, from which he comes to say it, has in it more overworked children and women, to say nothing of men, than any other on the face of the earth; a country whose nobles are to-day assassinated by Irish serfs, in the sheer desperation induced by the prospect of starvation; a country in some of whose populous districts there is such squalor and destitution as have aroused, even in the last twelvemonth, the utmost pity and sympathy of our reading public; a country, the misery, wretchedness and poverty of whose laboring classes have been by none more eloquently and graphically described than by English authors themselves.

This is the land which sent over to us the dolorous "Song of the Shirt," and Mrs. Elizabeth Barrett Browning's pitiful wail, called the "Cry of the Children!" This is the England from which our philosopher travels to tell us that we are losing our

hair and physically degenerating, because we are working too hard!

One year ago, two members of the British House of Commons passed through Chicago. They had been visiting every part of the United States, its wheat fields, its cities, its prairies, its deserts and its mountains. They came to study and to learn; and they did their work well. They came in order to advise others intelligently with reference to investments in American farm lands. While here, they, too, were invited to a banquet by a number of cultivated gentlemen in this city. One of these two members of the British Parliament had visited America twenty years before, and was enabled thus to compare its present with its former condition. In response to a toast, he said:

"A great deal has been foolishly spoken and written on the subject of physical degeneration among Americans. I do not believe in a word of it! I have seen your people in every part of your land, and have found them in no respect physically inferior to those of any part of Great Britain. How could it be otherwise? We are amazed at your growth, your immense resources, your material accumulation of everything that can conduce to man's physical welfare. We have compared the students in your colleges and universities with our own at Oxford and at Cambridge, and we find them equal in bodily vigor and powers of endurance. The improvement in your physical type during the last twenty years, has been one of the most conspicuous and interesting of the many facts we have noted since we have been here among you. I am looking at this moment into he faces of say, one hundred gentlemen of your great city. In physical vigor, in all the outward evidences of good health and maturity of bodily development, they are certainly the equal of the next hundred guests I shall meet at a dinner-table in Great Britain. No, gentlemen, it is not the physical, it is the mental, the moral, the political future of your country, which ought to awaken your anxieties—the struggle which you are yet to witness between capital and labor, the contest between, on the one hand, the brute forces which your material wealth has brought into existence; and, on the other, the conservative energies of

law, economical industry, and intellect, whose ultimate supremacy you will have, at all hazards, to secure."

So it appears that even our English critics are not all of one way of thinking.

If there be any timorous Americans, physicians or laymen, who, listening to Mr. Herbert Spencer's remarks on the eve of his departure for Europe, were thereby inclined to be, with him, fearful for the physical future of our people, let them take heart of grace! What Mr. Spencer does not know about this country, would fill many more volumes than those which he has himself already written. His assumption that a few New York gentlemen, whose hair had become prematurely gray in their anxieties over the Stock Exchange, were the whole American people, is only one of many British blunders. What folly to presume that the average man will suffer physical degeneration, in a land which has steadily advanced in the task of feeding the other nations of the world! Fortunately the great mass of the citizens of the United States, live outside the large cities. They are surrounded by unparalleled resources for physical development, and are profiting thereby to the largest extent. Their markets are unrivalled; their food, more wholesome, more abundant and cheaper than that of any other nation under the face of heaven. They are better clothed, day and night; tread on more carpets; sleep on more comfortable beds; warm themselves by more ample artificial heat-sources; and have more leisure, as the result of employing labor-saving machinery, than the people in any civilized or uncivilized race on the earth. They could have shown Mr. Spencer a locomotive engine, flying as straight as the crow flies, through consecutive hundreds of miles of waving corn, each stalk bearing eight full ears, and none measuring less than twelve feet in height. They could have pointed out to him their cattle upon a thousand hills, of which, after eating generously themselves, they will sell to his countrymen enough to make life a trifle less burdensome to the British laborer. Right here, in the State of Illinois, they could have introduced him last week to a "Banquet of Behemoths," where every guest weighed on the scales more than two hundred and sixty pounds before taking his seat at the groaning board.

We have not the slightest fear for the physical future of the average American; and we trust that Mr. Spencer and his fellow-critics may not be overburdened with their anxieties on this score. Nor have we space in which to mention by name the well-known gentlemen in public life who were or are superb examples of what this country has developed as types of manly excellence. The late President Garfield was a noble example of physical vigor; and his successor in office is certainly not lacking in avoirdupois. In the ranks of the United States Army, we remember the form of the gallant and lamented Custer, and the figures of Hancock and Augur; of the Hon. David Davis, of Illinois, and of the Hon. James G. Blaine, of Maine, in the the senate; the grand figure of the late chief-justice of the United States; and hosts of others in all the professions and occupations of life.

In our wars with the English people, we were not destroyed. Responding, later, to their contempt and sneers, we taught them telegraphy, and the use of the cylinder press and of a thousand other inventions which, by saving labor, have given them and us the greater leisure for physical development and culture. Let it be set down as a fact, that we shall not only survive their criticisms, but also disappoint their fears. Mr. Spencer complains that we do not grumble enough; and we shall establish the truth of this criticism at least, by refusing to grumble at him or his countrymen for their behavior, past and present toward us. We are great enough and strong enough to respond by simply laughing good-naturedly at him and them.

WE publish in this number of the JOURNAL AND EXAMINER, the valuable and instructive paper by Dr. H. D. Schmidt, of New Orleans, to which we have heretofore directed attention by an editorial announcement. The publication of this essay has been awaited with no little impatience, not only in this city, but in several remote parts of the country. The daily press of New Orleans and Chicago, quick to perceive the important character of the claim put forth by the author, attracted public attention to

his labors at an early date, and in a way that has given them a wide and deserved publicity. Not a few medical periodicals have given notice of the same announcement.

We can at this point be content to leave our readers to draw their own conclusions as to the essential facts involved; but it is difficult to believe that an issue as important as this will be permitted to rest here. In the next number of the JOURNAL, for example, we expect to publish a supplementary report upon these observations, with an illustrative drawing, by the same author. In this additional paper will be found a record of facts corroborating the views which are set forth in the essay now published, as also a more complete exposition of the method of artificially producing fat-crystals indistinguishable from the so-called bacillus tuberculosis.

We desire to attract to these investigations the attention which they deserve, having in view the end solely sought by the distinguished author, viz., the establishment of assured fact.

SUGGESTIVE.—Farmers in various portions of the world have applied pedigree selection to plants and found that after a few years seventy-two bushels of superior wheat could be produced on one acre. The same is being tried for cotton in India. Medicinal plants, like the rose, the castor oil plant, the cinchona tree, ought to receive particular attention in that direction, selecting from the plants which yield the most efficient oils, alkaloids, etc.

THE Faculty of Medicine of the University of Sidney, include in their curriculum lectures on zoölogy, botany, and comparative anatomy. The course is of five years. Biology is included among the preliminary studies required to enter the medical department of the New Zealand University.—(From the *Australasian Medical Gazette.*) This is another section of the world shut to the American medical practitioner.

Selections.

DEFLECTION OF THE SEPTUM NARIUM.* By E. FLETCHER INGALS, M.D., Professor of Diseases of the Throat and Chest, Woman's Medical College; Lecturer on Diseases of the Chest and Laryngology, Rush Medical College, Chicago.

Deflection of the nasal septum consists of a bending to one side either of the cartilaginous or bony septum, or of both. It is characterized by more or less obstruction of the naris and deformity of the nose. A slight degree of deflection is very common; indeed, it is so often found that it is not considered a pathological condition; but a degree of distortion sufficient to materially interfere with respiration, and to cause more or less deformity of the nose, is frequently met with. It is to these latter cases that I wish to direct attention.

For the sake of convenience in description, I will divide the cases into four classes: 1. Those in which there is slight bending of the whole septum. 2. Those in which there is bending of the septum, and more or less depression of the nose, due to injury. 3. Those in which there is local flexion, near the nostril, of the cartilage only. 4. Those in which a ridge of considerable size runs upward and backward, from near the nostril, along the line of articulation of the vomer with the cartilage, which ridge is formed mostly of bent cartilage, but partly of the bent vomer.

Judging from my own observation, the affection usually occurs in early life, either before or about the age of puberty.

---

* Read before the American Laryngological Association, session 1882.
Reprinted from the Archives of Laryngology, Vol. III, No. 4, Oct. 1882.

This deflection may be of traumatic origin, but usually it appears to be spontaneous. Some patients attribute it to an accident; such, for example, as being thrown from a horse, or falling upon the ice; but in the majority of cases no cause is assigned, or the one given does not satisfactorily account for the condition. In searching for the cause of this affection, we usually find that the patient has been troubled with catarrhal symptoms for some time before obstructed respiration has been noticed, and this is the only symptom which is found with any degree of uniformity in the early history of these cases. Again, in many persons who are affected with chronic coryza, we find considerable distortion of the septum, particularly of its cartilaginous portion. Both of these facts point to inflammation of the nasal mucous membrane as one of the principal factors in the production of the deformity.

I have had no opportunity to observe post-mortem appearances, but from a study of clinical cases, and from the examination of numerous skulls, I am convinced that the affection of the septum usually commences in the cartilaginous portion, and that the flexion of the vomer, which often exists, is of mechanical origin, due to firm articulation of this bone with the cartilage.

We must bear in mind that we have a vertical septum, resting upon an unyielding base, and held firmly down by the nasal bones and soft tissues of the nose, therefore no addition can be made to its edges without causing flexion. In cases of spontaneous origin, the principal changes appear to have been in the edges of the cartilage, increased growth from which has caused it to bend upon itself; but in some cases there is also considerable thickening of the septum.

The process, I believe, generally depends upon congestion of the overlying mucous membrane, but its exact nature has not been determined. It is probably a simple hyperplasia of the cartilaginous cells, due to hypernutrition; but it may possibly be of the nature of rachitis, the pathology of which is obscure.

Sir W. Jenner* says the alterations in the bones in rachitis consist in an increased preparation for ossification, but an incomplete performance of the process.

* "Green's Pathology and Morbid Anatomy." 3d Am. ed., p. 222.

P. Henry Green * states that the zone of cartilaginous tissue which in health is being transformed into bone is very thin, but in rachitis it is greatly increased, particularly at the ends of the bones, but also beneath the periosteum.

It would seem, therefore, that at least one step in the development of rachitis consists in an abnormal growth of cartilage, and it is possible that the same conditions operate to enlarge the cartilaginous septum that causes the increase in rachitis. However, if we accept the theory that rachitis is due to checking of nutrition, it would appear inappropriate to class deflections of the septum as one of the manifestations of this disease; for in patients in whom deflection is observed, there is seldom any evidence of imperfect nutrition, and thus far I have not seen one presenting other signs of rachitis.

Patients with deflection of the septum generally apply for relief, because of obstructed respiration or deformity of the nose. But we usually find, also, that there is excessive secretion from the nasal mucous membrane, most of which passes behind the velum into the throat. We also observe that the voice has something of a nasal twang, but the progress of the flexion has usually been so gradual that the patient himself does not appreciate the change.

Wnen distortion of the septum is extreme, the point of the nose is often pushed to the opposite side, so as to cause considerable deformity, especially in ladies. I have found this deformity so often, that I am led to think that in a majority of cases, a crooked nose is the direct result of enlargement and deflection of the septum.

Upon inspecting the naris on one side, we find a free space, with more or less concavity of the septum, along which a narrow furrow will often be seen, corresponding to the line of greatest flexure. In the opposite naris we find convexity of the septum, varying in extent and position in different patients, but always greater than would at first be expected from examination of the larger naris.

Contrary to the experience of others, I have observe this convexity most frequently on the right side.

* Ibid.

In the first class of cases, there is a uniform concavity of one side, with a corresponding convexity of the other.

In the second class, the deformity depends upon the severity of the injury, and may consist of simple depression and bending of the septum, or of this conjoined with fracture of the nasal bones.

In the third class, there may be only a slight flexion of the cartilage, near the nostril, both the anterior and posterior extremities of which may be easily seen; but in many instances the bent septum passes obliquely downward, from its natural position above, to the ala, and then bends sharply upon itself, so as to lie almost horizontally across the nostril. In this form of distortion, the nostril is often found to be completely closed, and the point of the nose is crowded considerably to the opposite side. In such cases, thorough inspection may be impossible, but by drawing the ala well outward, we may usually obtain a view of the deeper parts of the naris.

In the fourth class, the deformity usually commences at the middle or upper third of the septum, and passes from that point outward and downward, nearly to the floor of the naris. It then bends sharply upon itself, forming a longitudinal ridge, which stands out from the normal plane from three to eight millimeters. The ridge thus formed generally passes obliquely upward and backward, a distance of two or three centimeters, in a line corresponding to the articulation of the vomer with the cartilage and nasal plate of the ethmoid.

The most prominent part of the flexure is usually found about two millimeters below the normal position of the junction of the nasal cartilage with the vomer. In these cases, though upon first inspection the inferior plane of the bent septum appears to rest upon the floor of the nasal cavity, it will generally be found that a space remains beneath it sufficient to allow the passage of a probe two or three millimeters in diameter.

There can be no difficulty in making a diagnosis if both nostrils are inspected, but it is sometimes impossible to determine the extent of the inflexion, in the deeper parts of the naris, until the cartilage in front has been removed.

In cases of spontaneous origin, the process of flexion continues

for a limited, though uncertain time, but probably, in most cases, for at least two years. It finally comes to a standstill, and there seems no tendency to recurrence of the active increase in the size of the cartilage, neither is there likely to be any atrophy of it; but the deformity, unless relieved by an operation, will continue through life.

In traumatic cases, considerable flexion results immediately from the injury, but, judging from the extent of distortion in cases of this variety which have fallen under my observation, the injury is usually followed by considerable hypertrophy, and subsequent bending of the cartilage.

Several operations have been recommended for the relief of this condition. The most important are, the one recommended by S. D. Gross, which I believe is the same as that proposed by Chassaignac, which consists in paring off a portion of the bent septum; the operation proposed by Wm. Adams, for forcible replacement of the bent and depressed septum; and Goodwillie's operation for perforating the septum.

Several modifications have been made in each of these operations, which have better adapted them to special cases.

In the first class of cases, often no operation is necessary, though perforation by Steel's instrument, or Adam's operation, would probably correct the deformity, yet, even in these, I should prefer the removal of a slender triangular piece from the lower margin of the septum.

In the second class of cases, Adam's operation,* or the operation suggested by Dr. A. J. Steel, of St. Louis, and subsequently practiced by Dr. Glasgow,† seems most likely to be followed by favorable results, especially if there is no enlargement of the cartilage, in which case, if replaced, it is of exactly the proper dimensions to restore the nose to its former shape.

In the third and fourth classes, where there is an increased growth of cartilage, no operation is likely to be permanently successful which does not include the removal of the redundant tissue.

---

* *British Medical Journal*, Oct. 2, 1875.

† *St. Louis Courier of Medicine*, 1879; also, Transactions of Am. Laryngological Association, 1881, p. 117.

Simple perforation of the septum is not sufficient in these cases, for, although it will doubtless partially relieve the difficulty in respiration, by allowing air to pass from the obstructed nostril through the enlarged naris, it will not correct the deformity of the nose. It will not usually cure the obstruction in the back part of the occluded naris, and therefore it cannot cure the catarrhal symptoms; besides, as suggested at the last meeting by Dr. Glasgow, there is a tendency to scabbing of the edges of the perforation, and deformity of the nose is liable to result from removal of large portions of the septum.

Paring off portions of the septum will answer the purpose in some cases, but it is only suitable for a small number. By this operation, a thin septum would be left of the original size, and of insufficient strength to support the nose. Such a septum would be peculiarly liable to further distortion; consequently, in many cases, the operation would not only fail to correct the twisting of the nose, but it would favor subsequent depression of the external parts. The operation suggested by Dr. Jarvis I have not tried, and as it is to be fully discussed in the next paper, I will not comment upon it.

In all cases where the cartilage is much enlarged, the operation which seems to me most suitable, and which I have on two occasions found very satisfactory, consists in separating the mucous membrane and removing the redundant tissue, after which the mucous membrane is stitched down, and the septum retained in proper position until firm union has taken place.

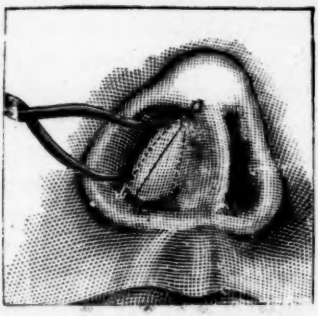
The operation will sometimes require considerable time, and therefore in most instances an anæsthetic will be necessary.

Ether or chloroform may be employed, but nitrous oxide is preferable for short operations, such, for example, as that to be recommended for cases of the fourth class.

Before commencing the operation, when possible, a small Eustachian catheter should be carried through the obstructed nostril to the pharynx, and through it a catgut or a well-waxed silk ligature should be passed, for tamponing the posterior naris. This ligature should be attached to a suitable tampon of cotton or sponge, and tied in such a manner that about two inches of the end of the ligature may hang down the pharynx when the

tampon has been placed in position. This hanging end will greatly facilitate the removal of the tampon after the operation. It is usually best to introduce the tampon before the anæsthetic is administered.

When the bent septum lies nearly horizontally across the nostril, the mucous membrane over the septum should be incised from above downward and outward, near the center of the nostril, as indicated by the line *a d* in drawing, and then, with the handle



of a scalpel. or with delicate curved spuds, the membrane should be separated from all that portion of the septum which is to be removed.

Estimating carefully the amount of tissue which it will be necessary to resect in order to secure symmetry of the nose and a straight septum, the cartilage should now be cut through from the upper to the lower outer angle of the obstructing portion *a b*, as indicated by the dotted lines in the drawing, and then along the inner border from above downward, *a c*. With a little care, this incision can be made without cutting through the mucous membrane in the opposite naris. The cartilage may now be seized with forceps by the angle (*a*) and drawn downward and cut off. If the flexion extends backward along the septum, a slender triangular piece must also be removed from its lower border by means of scissors, a knife, or a short cutting hook.

The incisions should be so planned that when the septum is pushed into its normal position, the cut edges of the cartilage will be in apposition. The mucous membrane is now drawn down and stitched, thus holding the cartilage in proper position;

but it must also be supported by a plug, or by a pledget of cotton, until firm union has taken place. I have used cotton for this purpose, but the plugs recommended by Adams and Glasgow might possibly answer a better purpose. After a few days, a tubular instrument of similar form would probably be more comfortable.

The twisting of the end of the nose will be found to have been remedied by replacing the cartilage. and if proper care is exercised to keep the septum in position, until union is firm, a perfect result may be confidently predicted. I have not made the experiment, but I think the after-treatment would be more easily carried out if the cartilage were either broken or incised at its upper part, so as to destroy its resiliency, and thus require less pressure to hold it in its normal position.

In addition to the anterior obstruction, a large ridge sometimes runs upward and backward a distance of two or three centimeters, as in the fourth class; this may be removed at once, or a second operation may be made.

In the fourth class, not only the cartilage, but usually the upper border of the vomer also, is bent; were it not for this, the operation might be readily performed by separating the mucous membrane, and then paring off the cartilage with a slender probe-pointed knife. On account of the bony tissue which has to be cut through, a slender saw will be found useful in operating on these cases. I have used a slender metacarpal saw, but I am now having made a much smaller instrument, which may be worked either by hand or by a dental engine, and which will, I think, materially facilitate the operation, and possibly render an anæsthetic unnecessary in cases of this class.

In these cases, the mucous membrane should be divided perpendicularly at the anterior extremity of the ridge, so as to allow the introduction of a spud; also along the lower angle of the deflected cartilage, at a point which will insure enough tissue to cover the cut surface of the septum. The membrane having been separated from the septum, the saw is carried beneath the projecting portion, close to the ridge of the maxillary bone, and the cut is made directly upward until the bone and cartilage are divided. The piece being removed, the mucous membrane falls

down upon the cut surface, and may be stitched at its anterior extremity to the membrane covering the crest of the maxillary bone.

It is not often necessary to bend the septum after this operation, but if the flexion at its upper part is very great, it is advisable to restore it to its normal position, as after the operation for cases of the third class.

P. S. Since the above was printed, I have operated on a case twenty years of age, in which the bending of the septum was so great as to obstruct both nostrils. The deformity was first noticed during infancy.

The patient made a good recovery, and the deformity of the nose was much benefited, though, on account of the bending of the nasal bones, it could not be entirely corrected without a fracture of the latter, which was not deemed best. The obstruction of the naris was perfectly relieved, and the patient's general health improved. E. F. I.

STATE BOARD OF HEALTH OF WEST VIRGINIA.

The following circular, received from the Secretary of the Board, will give our readers a fair knowledge of the scope and practical working of the recently enacted laws of West Virginia in relation to the Public Health and Medical Practice. ED.

OFFICE OF THE STATE BOARD OF HEALTH.
WHEELING, September, 1882.

TO LOCAL BOARDS OF HEALTH, PHYSICIANS AND OTHERS INTERESTED IN SANITARY SCIENCE.

Gentlemen: The law establishing a State Board of Health and regulating the Practice of Medicine and Surgery, passed March 8, 1881, and amended and re-enacted March 15, 1882, is now in full force and effect in every county of the State, and the earnest co-operation of all persons asked who desire that human suffering shall be alleviated, the death-rate diminished, and the sanitary conditions of our State improved. Without such hearty co-operation, especially on the part of local boards of

health and the members of the medical profession generally, the law, however wise in its provisions, must fail utterly in conferring upon the whole people of West Virginia the humane and priceless benefits contemplated by its passage.

All who engage in the study of local conditions affecting the public health—the influence of soil, climate, water and food supplies, drainage and sewerage; the influence of race, population and social conditions; or who watch the invasion of contagious and infectious diseases to discover the agencies or causes which produce and maintain them, and devise the proper methods for their control; who assist in collecting reliable vital statistics and in any wise employ their energies to systematize and perfect the grand work intrusted to those in charge of the public health—are public benefactors.

It is an encouraging sign of the times that so much attention is now being paid by lawgivers to the prevention of disease. The art of the physician can do much in curing disease in detail, but the power of a State legislature, if well directed, may do infinitely more in adopting and enforcing measures to check, if not wholly prevent, the development of a large class of very serious maladies.

During the last century, statistical researches have developed two extremely important facts, namely, that the mean duration of human life is generally less than half that of the three score and ten years commonly allotted as the term of man's existence, but that, on the other hand, communities have it, to a certain degree, in their power to diminish the causes by which the lives of their members are thus abridged; and it has been made evident that, in consequence of the judicious employment of that power, the average duration of human life has been for many years slowly but progressively on the increase.

Stimulated by the activeness of sanitarians the public mind is becoming more and more enlightened as to the connection of *filth* and *disease;* and it is the duty of local boards of health to busy themselves to the end that such knowledge shall pervade and influence every household in the State.

THE APPOINTMENT OF LOCAL BOARDS AND THEIR DUTIES.

By reference to sections 6 and 7 of the amended act of 1882, it will be seen that local or county boards have a wide and responsible field of duties.

The manner of appointing local boards under the law of 1882 precisely reverses the method prescribed in the act of 1881. Now it is simply the duty of the county court to nominate for each county "three intelligent and discrete persons residing therein, one of whom, at least, shall be a person legally qualified to practice medicine," and the State Board may or may not confirm the nominations so made by the court. In the event of non concurrence by the State Board, it is the duty of the court to name other persons for the office, and so continue to nominate until the State Board shall accept and appoint. In covering the State with local boards of health, there has been no serious conflict of authority in the matter of appointments except in a single instance; and this speaks well of the favor with which the passage of the law was received, and the pleasure of county courts in putting into effect the most useful arm of its power.

Persons appointed on local or county boards of health hold their office for the term of two years, unless sooner removed by the State Board. As soon as possible after their appointment, the board shall meet for organization—the member first named on the list of appointments making the call—and elect from their number a presiding officer as prescribed in section 6 of the act. The county board thus organized "shall make and establish for the county, or for any place or district therein, such sanitary rules and regulations as may be deemed necessary and proper by the said board to prevent the outbreak and spread of infectious or contagious diseases."

"The local board of any county may declare quarantine therein, or in any particular district or place therein, against the introduction of any contagious or infectious disease prevailing in any other State, county or place, and of any and all persons and things likely to spread such contagion or infection." But "as soon as such quarantine is established, the local board shall, in writing, inform the members of the State Board residing in that

congressional district, whose duty it shall be to ascertain the necessity of such local quarantine and take action accordingly."

In the matter of expenditures of money necessary for local and county sanitation, and of all bills incurred by local boards of health, their agents or appointees, while in the performance of official duty, the pleasure of the county court must be consulted. "In cases of emergency, or of actual necessity, and when the court or corporate authorities are from any cause unable to meet or to provide for the emergency or necessity of the case, all actual expenditures shall be certified by the local board to the county court, and the whole or as much thereof as the said court may deem right and proper, shall be paid out of the county treasury." It is plain, therefore, that the most intimate and reciprocal relations should exist and be cultivated between county courts and local boards of health in order that there shall be no lack of energy in the performance of sanitary work, on the one hand, nor liberality in the payment of just bills for service rendered, on the other. A careful study of sections 6 and 7 of the amended act will show direction for every duty to be performed by local boards.

THE DUTY OF PHYSICIANS.

The law makes it the plain duty of every practicing physician to report promptly to the presiding officer of the local board of his county all cases of cholera, small-pox, scarlet fever, diphtheria, enteric or typhoid fever, whooping cough, measles or other endemic, epidemic, infectious or contagious diseases of dangerous character, under treatment by him. To encourage and facilitate a full and prompt report by physicians, cards in blank will be distributed to them through local boards. In this way the duty of making report will be made easy, and the most thorough sanitary police of the State secured. The result of this required labor of physicians will soon be seen in reports compiled therefrom by local boards whose duty it shall be report to to the State Board of Health "once, at least in every three months, the character of all such infectious, contagious, endemic or epidemic diseases; the number of persons reported as affected with either of said diseases, naming the same; the action taken

by the local board to arrest the progress of every such disease, and the visible effects (if any) of such action."

"Where any city, town or village has a board of health of its own, the jurisdiction of the local or county board shall not extend thereto, but such city, town or village board shall be auxiliary to and act in harmony with the State Board of Health."

THE PRACTICE OF MEDICINE.

It is remarkable and worth telling that the State Board of Health has had trouble in but *three* cases among the thousand and sixty applicants for medical certificate. Indeed, nothing could work more smoothly than that part of the machinery of the law regulating the practice of medicine and surgery, for it has the hearty support of every respectable physician in the State, and all are proud of our rising professional standard.

The new manner of dealing with itinerant physicians has not only put several hundred dollars into the State treasury, but prevented the incursions of a class of ignorant pretenders who, previous to the passage of the law, regularly occupied West Virginia to humbug credulous people.

It is the duty of every legally qualified physician to keep close watch for all violations of the law, and when offenses are discovered, to report them promptly to the prosecuting attorney or to a justice of the peace.

Section 14 makes it the duty of the sheriff to collect the "special tax of $50 for each month and fraction of a month" from all *itinerant physicians*, of whatever name or character, "who shall travel from place to place, and by writing, printing or otherwise, publicly profess to cure or treat diseases, injuries or deformities." Any person is regarded as practicing medicine within the meaning of the law "who shall publicly profess to be a physician, and to prescribe for the sick, or who shall append to his name the letters 'M. D.'"

The act also applies "to druggists and pharmacists who prescribe for the sick," and should be enforced against such offenders to the letter. Frequent complaints have reached the State Board of violations of the law by druggists and pharmacists, and there is good reason to believe that such offenses, though not as common

as before the passage of the law, are yet of frequent occurrence in many of our large towns. By all proper means, such offenders should be discovered, and the information given to the prosecuting attorney or a justice of the peace.

Finally: The law requires that all persons engaged in the practice of medicine and surgery in West Virginia shall have a certificate from the State Board of Health. There are three classes of certificates: 1st, the diploma class; 2nd, the ten years' experience class; 3d, the examination class. "Itinerant physicians" must possess the qualification of one or the other of these classes before offering to engage in general practice or to prosecute a specialty; and unless they first so provide themselves with a medical certificate from the State Board they become offenders in a *double sense* and liable to the severest penalties of the law.

Should the registration of any person engaged in the practice of medicine be questioned, or doubtful, specific information may be had by addressing the office of the secretary of the State Board of Health, giving the name in full, as well as the residence of the supposed offender.

THE STATE BOARD WILL CO-OPERATE WITH THE LOCAL BOARDS OF HEALTH.

☞ By immediately answering all communications from local boards.

By sending brief suggestions to meet any emergency, or when the public health is endangered from any cause.

By telegraphing and writing to local authorities to secure the best means of protection; or by visiting in person the county, district, or place, for the purpose of instituting and enforcing rules for the suppression of infectious or contagious diseases prevailing therein.

By supplying all needful forms for reports by physicians, and giving such information to local authorities as shall be necessary for the protection of the public health.

☞ THE STATE BOARD advises that every local or county board be prepared against small-pox, by urging all school boards to prohibit the attendance of un-vaccinated children; by an

agreement with all physicians to vaccinate every unprotected person in each household where they attend; by instructions to all health officers and agents or officers of local boards to ascertain who in each community are unvaccinated and exposed to small-pox; by notifying the secretary of the State Board of Health without delay when small-pox appears; by writing or telegraphing the situation of the case or cases; and by requiring prompt compliance with all orders issued either by the local or State Board for the control of disease.

The State Board urges upon local or county boards the importance and necessity of a prompt and careful distribution of the blank cards sent from this office for the use of physicians in making reports of all infectious, contagious, endemic or epidemic diseases under treatment by them, in obedience to section 6 of the amended act. Complete lists of the registered physicians of any county will be furnished on application to the Secretary of the State Board; and local boards should regard it one of their special duties to require of all physicians complete returns according to law.

The accompanying postal card, addressed to the Secretary of the State Board, is for the acknowledgement of the receipt of this circular and other documents sent with it. On it should also be returned the name in full and post-office address of each member of the local or county board of health, not omitting to distinguish the presiding officer, and the secretary, if there be such officer. The postal card should be returned promptly, in order that the record of local boards shall be correct in every particular.

Trusting that this circular may serve to increase the confidence of the medical profession in the State Board, and lead to reforms that shall advance the cause of the public health in West Virginia, I am, Your obedient servant,

JAMES E. REEVES, M. D.,
Secretary State Board of Health.

MEMBERS OF THE STATE BOARD OF HEALTH.

Geo. B. Moffett, M.D., President, Parkersburg; James E. Reeves, M.D., Secretary, Wheeling; C. T. Richardson, M.D.,

Charlestown, Jefferson County; Geo. H. Carpenter, M.D., Moorefield, Hardy County; Hon. A. R. Barbee, M.D., Point Pleasant; Gabriel McDonald, M.D., Union, Monroe County; Lawrence Carr, M.D., Charleston, Kanawha County; Wm. M. Late, M.D., Bridgeport, Harrison County.

GLYCOSURIA. By OSCAR C. DEWOLF, A.M., M.D., Professor of State Medicine and Public Hygiene in Chicago Medical College.

It requires but little reflection etymologically, to justify a preference for the word glycosuria in naming the disease upon which Aretæus first wrote as diabetes, in ignorance of the saccharine and non-saccharine conditions existing in what are now known to be widely different diseases. Though diabetes mellitus has been used to designate the constant, and glycosuria the temporary occurrence of sugar in the urine, the absurdity of any such distinction is too apparent. It is safe to predict that the terms chronic and temporary glycosuria will take the place of the older but inexact names mellituria, etc. *Zuckerharnruhr* is an expressive German equivalent.

The literature of the subject is in a scattered and generally inconclusive state, though this is not peculiar to articles upon any one disease. The best work accomplished in an investigation of glycosuria is that by the late Claude Bernard.* With this physiologist's conclusions (familiar to all as the glycogen and glucose theory) as a *datum plane*, to use an engineering term, thousands of "contributions," good, bad, and useless, have been presented to the medical reader. A glance at the seven pages of bibliography by Senator,† and through the pages of the American *Index Medicus*, suffices to discourage any other than the sciolistic student, whose sole object is to *appear* to know. One of the *Esse Quam Videri* genus would soon learn that the literature of the

* Claude Bernard, Mémoires de la Soc. de Biologie, 1849, vol. i., p 221. Nouvelles Fonctions du Foie Considérée comme l' Organe Producteur de Matière Sucrée. Paris, 1853.

† Senator, Ziems en's Cyclopædia, vol. xvi., pp. 851—858.

subject is immensely more voluminous than Senator indicates, and that between compassing it and indulging in original experimentation and investigation an ordinary life-time would not suffice. Doubtless nine tenths of what has been written upon diabetes mellitus is worthless, owing to lack of proper education or surroundings on the part of the writer, or insufficient time to properly analyze cases. The earnest student cannot reform the world; he must take things as they are, and make the best of them. In this endeavor he will be straightway appalled at the polemics indulged in by "authorities," and upon points he imagined were fundamentally established. T. Lauder Brunton* gives a fair review of this aspect of the mellituria question, with the discussions, denials, and controversies between contemporary and other authors and investigators, such as Rollo, Tiedemann, Gmelin, Ambrosiani, Dumas, Bouchardat, Liebig, Bernard, Bouley, Poggiale, Longet, Pavy, Flint, and others. The labors of the ideal physician are presumed to be largely altruistic, but I cannot avoid the conviction that were some such brilliant individuals as Newton, Descartes, Hunter, Huxley, or Tyndall, afflicted with thorough medical educations and glycosuria at the same time (providing the latter impaired their minds and usefulness as little as the former), their egoistic efforts might and in all probability would result in something definite in this direction.

In the midst of distracting public duties the subject of glycosuria has recently occasioned me much concern, and I have attempted its review, the results of which I submit in the shape of conclusions rather than disquisitions and re-presentations of the treatment in text-books accessible to all; not in the spirit of Tom Hood's "Otaheitan cook, who thought no food was fit to eat till he had chewed it," but rather with the *animus* of Chambers, who recognized the impossibility of treating any disease (scientifically) with out having a hypothesis as to its nature, and as to the best means of combatting the disorder. Later in the year I hope to be able to communicate to this Journal the result of some clinical observations in the matter of glycosuric treatment.

Chemical text-books, and works on the practice of medicine discuss far more fully than could be done in this essay such matters

* T. Lauder Brunton, Reynold's System of Medicine, vol. iii., p. 35, et seq.

as urine-analysis and the relative quantities of fluid and food ingestion and excretion. In fact, so much space in current print is allotted to a consideration of these threadbare points that only this mention will be made as an excuse for omitting further reference to them.

Naturally enough the disease was in ancient times supposed to be seated in the kidneys. Every tyro in medicine now knows that to Claude Bernard we are indebted for the discovery of the connection between glycosuria and a disarrangement of the liver function. That puncture of a portion of the lower floor of the fourth ventricle will produce sugar in the urine is also well known, better known than that diabetes insipidus has a so-called center in the medulla just above the glycosuric point. Still less known is it that lesions of the sympathetic system below the ventricular point may likewise cause mellituria, and that pathological conditions of the vagi may induce phases of the disorder.*

Glancing over the various accounts of diabetic ætiology, we find that heredity as a predisposing cause, or a factor at all, is debatable. Granting that neuropathic parents have had offspring in whom glycosuria has been developed, the question of heredity then narrows itself to the inquiry whether defects of the nervous organization may not assume different ways of manifestation in offspring just as cachexia does. It is agreed that men are more liable to glycosuria than women, and that it may appear at any age; but until we have more pains-taking statisticians scattered over countries other than those reported from by Griesinger, Seegen, Schmitz, and Dickenson, we may conclude that we have imperfect data from which to make deductions. Trousseau regards corpulence as a predisposing cause, and when we consider the chemical relationship of fat and sugar it is not to be wondered at that retrograde metamorphosis would be as liable to occur as that sugar should form fat by oxidation. Thus obesity might be considered ætiological as well as predisposing. Another view would be that starch or glycogen, instead of undergoing transformation into fat directly or indirectly, by some perversion of function, became glucose instead. So far as I am aware these probabilities have had no consideration anywhere.

* Marvaud and Wiet, Le Progrès Médical, No. 21, Proc. Soc. Biol., May, 1881.

Reviewing the neurologial aspect of the disease, there seems to be very much yet to be done in this field. Cyon and Aladoff* figure the course of the vaso-motor nerves of the liver from the base of the brain downward. This can but be hypothetical. Kronecker,† at Leipsic, confines all vaso-motor centers to the floor of the fourth ventricle, but Luys and Jewell‡ suppose that there is a continuous column of such centers for the whole body in the medulla and cord, while Brown-Séquard extends them to cerebellum and brain, and Clevenger‖ agrees with the latter, but goes further in extending them to the entire cerebro-spinal system. Cyon and Aladoff give the glycosuric tract as passing down the spinal cord to some of the communicating branches of the sympathetic, thence through the splanchnic nerves to the liver. Admitting that some such tract undoubtelly exists, the next step is to ascertian how a lesion would operate through it to produce sugar in the liver. The generally accepted view is (from some very notable experiments) that dilatation of the hepatic blood-vessels through vaso-motor paralysis, thus induced, produces engorgement, and that sugar in the urine follows. As to *why* sugar-production follows this interference with liver function much has been written, and doubtless much more will be. Glycosuria has been likewise produced by injuries of the cerebral lobes, cerebellum, optic thalami, and sciatic nerve, according to Schiff, Eckhard, and Pavy, which fact would invalidate the idea of a single tract and the widely noticed ventricular irritation of Bernard as a cause, and account for glucose being somewhat commonly found in the urine of those suffering from any mental or nervous ailment.

Taking these things into consideration, we may well wonder whether the transfer of the disease from the kidneys to the liver as a seat is more than a step toward a clearer, broader view of both the disease and bodily functions in general. Brunton thinks "we are justified in believing that the sugar which is present in the blood, becomes converted by the aid of a ferment in the blood muscles, and probably lungs, also, into lactic acid and glycerine,

* Cyon and Aladoff, Bulletin de l'Acad. de Petersbourg, vol. viii.

† Vulpian, Rev. Scient., 1874, No. 35.

‡ Journal of Nervous and Mental Disease, vol. i., p. 116.

‖ Op. cit., October, 1880.

and then undergoes combustion, thus sustaining the temperature of the body. Supposing, however, that this ferment is deficient, a greater or less proportion of the sugar will not undergo conversion into acid, and will then remain unconsumed." The temptation to be discursive and polemical at this point is very great but I prefer to present deductions which I have made while referring to some recent articles bearing more or less directly upon the neurology of the subject.* Bernard himself enlarged upon his original views, and in a communication to the Academy of Sciences January 10, 1876, reported in the *Revue Scientifique*, summarizes the principal points elicited, which seem to have been overlooked by many who have written upon glycosuria. It affords a good *résumé* of our present knowledge of the subject and is worth reproducing here:

"Animal blood always contains sugar. This glycæmia depends on a normal function of the liver. These facts were established by Bernard and those succeeding him. The physiological production of sugar in the liver is subject to the influence of the nervous system, and by wounding a particular point in the fourth ventricle not far from the origin of the vagi nerves, the sugar is developed superabundantly, rendering the animal rapidly diabetic; from this arose the theory of the glycogenic function of the liver. This function only becomes developed at a certain period of intra-uterine life, but sugar is none the less lacking in the organism undergoing evolution. Sugar exists in the allantoid and amniotic liquids and in the urine, and diabetes is, after a fashion, the normal condition of the fœtus. Bernard from this regards glycogenesis as a general physiological phenomenon, *accompanying all the manifestations of life in animals and plants.* Later, the discovery of the glycogenic matter to some extent changes the face

* Painful Symmetrical Neuralgia in Diabetes, Sciatic and Dental. *Le Progrès Médical.* M. J Worms, Session Paris acad. Med., September 10, 1880. Lesions of the Brain in Diabetes, Stevens' Triennial Prize, January 1, 1882 (to be awarded March, 1882, at the annual commencement of the New York College of Physicians and Surgeons). Changes of the Sympathetic in Diabetes, Poniklo. *London Lancet*, May, 1878. Influence of the Nervous System on the Formation of Sugar, M. Laffont, *Progrès Médical*, No. 10, 1880. Glucose Tests, *Science* (New York), December 24, 1881, p. 616. The Dynamo-Chemical Theory of Diabetic Glycæmia, M. Figury, Acad. de Médicine April 10, 1877, Bull. Gen. de Therapeutique. The Teeth in Diabetes, Magitot, *Journal de Médecine de Bordeaux*, January 1, 1882. Clinical Observations of Diabetes Mellitus, New York Academy of Medicine, stated meeting, February 16, 1882 *New York Medical Record*. February 25, 1882.

of the problem in connecting it with one of the most difficult questions of general physiology, that of the intimate nutrition of the tissues. The theories of nutrition have always allotted to the blood the principal part in the chemical changes that take place in the living organism, but M. Bernard has shown that instead of seeking directly in the blood for the substance preceding the sugar and producing it, it is necessary to place it in the hepatic tissue itself."

M. Lancereaux, it seems to me, took a step in the right direction, in announcing two diabetic types, in a paper read before the French Association for the Advancement of Science, August, 1879. Lancereaux claims that there are *fat and lean types*. The first begins insidiously between the ages of twenty and thirty with obesity, death occuring from phlegmon, rarely from pulmonary consumption. The lean cases spring suddenly from a condition of previous good health, and last from one to six years, or more frequently terminate with phthisis pulmonalis which begins with chronic pneumonia. *Destruction of the pancreas* was recognized in two of the "lean" cases examined, and he infers a direct relation between pancreatic destruction and glycosuria, claiming that there are good grounds for a nosological distinction of these two varieties.

While the obese cases may be simply such as Senator considers predisposed, it would be well tos separate all such cases hereafter and see whether there was the uniformity of phenomena mentionen by Lancereaux. Similarly, I fancy, we may be enabled to diagnose the especial lesion and its seat by some such sensible proceeding, instead of contenting ourselves with the bare fact of sugar being constantly found in the urine. A rational system of treatment can thus be inaugurated which will enable us to address ourselves intelligently to *causes* instead of effects. For example, neuropathic cases might find especial benefit from neurotics, while those originating in obesity would derive no advantage from such treatment. All measures adopted in the latter cases should partake of an effort to aid in decreasing fat production and an interesting point in this connection is afforded us by Immermann :*

* Immermann. Corpulence. Ziemssen's Cyclopœdia, xvi., page 647.

"In violent voluntary motions of the body not only will less fat be produced, but, owing to the more energetic process of oxidation in the tissues more ipogenous material will be destroyed." Hence the observations of Bouchardat, Kuelz, and Trousseau, that active muscular movements are capable of lowering the excretions of sugar, have a rational foundation in the presumption that both these hydrocarbonaceous substances, fat and sugar, are burned up in the muscles under proper conditions, and that both are fuels (so to speak) which if allowed to accumulate become pathological and consequently pernicious. On the other hand, the inappropriateness of much exercise for the enfeebled non-obese cases might soon be made apparent by trial.

Although glycosuria does not frequently fall to the care of general practitioners, it has befallen me to have charge of several cases directly and indirectly, naturally awakening a solicitude not to be appeased by our inchoate literature of the subject.

The fact that one half of these cases undoubtedly originated in neuroses of a mental type could not fail to impress me with the conviction that the diabetic center in the floor of the fourth ventricle might have become involved by either an extension of a lesion originating above this point or by direct congestion thereabouts. The patients mentioned are engaged in large manufacturing and mercantile enterprises, and uniformly their glycosuric troubles began after having been subjected to great mental strains. This set me to overhauling the subject, with the results which I hesitatingly submit in condensed from in the shape of conclusions at the end of this article.

Prout was first in calling attention to the phase of glycosuria known as diabetic coma. The later workers in this field (Petters, Sanders, Hamilton, Kussmaul) somewhat uniformly overlook the neurological aspect of the dyspnœa which ushers in the coma. It is very evident that a nerve degeneration which could cause the interference with the liver functions, and thus induce diabetes could as well extend to the pneumogastric centers or fibers, and thus produce the respiratory insufficiency directly through failure of innervation.

Petters urged the acetone poison theory as a cause of the coma,

but Sanders and Hamilton* satisfy us that acetonæmia may exist without the coma. It is sufficiently proven that the blood in these coma cases does evolve acetone, but that it is a factor in the production of dyspnœa seems to have been disproven. Ruppstein† gives an equation illustrating the formation of acetone, alcohol, and sodium hydrogen carbonate from sodium ethyl diacetate. In this decomposition the latter absorbs two molecules of water, which fact is again indicative of the abstraction of the blood serum alluded to in another part of this paper as productive of polydipsia.

Quincke‡ and Steel, cited by Gamgee‖ mention two cases where the coma was transitory, which would disparge the neurological view and lead us to search for a chemical or at least less organic cause.

Something in this direction, not alluded to by others, occurred to me when considering the power possessed by animals to deoxidize saccharine substances in fat conversion. By taking a certain number of molecules of carbonic acid water, and oxygen from glucose, the elements of the ordinary forms of fat are furnished: $20C_6H_{12}O_6$ (sugar) $= 2C_{57}H_{110}O_6$ (stearin) $+ 6CO_2 + 10H_2O + 43O_2$. Quincke, who rejects the acetonæmia theory concludes that the comatose condition is due to a toxic action and not to a suddenly developed nervous lesion .Gamgee calls attention to the remarkably intense fatty infiltration of the liver in two cases in the Royal Infirmary. Hoppe Syler § states that the proportion of fat increasad greatly in the blood in four cases of diabetes.

Notwithstanding the note that in one of the Infirmary cases the blood did not seem to be particularly venous, I cannot help believing that the liberation of such great quanitities of carbonic anhydride in fat formation was a direct cause of the coma. At least the view is submitted to physiological chemists as worthy of attention. Then, again, the observation of Foster¶ in support of

* Gamgee, Physiological Chemistry of the Animal Body, vol. i., page 169.

† Centralblatt, 1874, No. 55

‡ Ueber Coma diabeticum, Berliner Klinische Wochenschrift, 1880, No. 1.

‖ Op. cit

§ Physiologische Chemie, page 482.

¶ Diabetic Coma Acetonæmia, British Medical Journal. 1878, vol. i, p. 73.

the acetone theory were instrumental in establishing the lipæmic condition of the blood in diabetes, and Czerny's account of symptoms in a case of fat embolism led Sanders and Hamilton to advance the theory that "the peculiar terminal dyspnœa and coma of diabetes are due to lipæmia and fat embolism rather than to acetonæmia. Setting aside the acetonæmia theory of diabetic coma as untenable, but being forced to acknowledge that the neuropathic and chemical explanations suffice in some cases, it would seem to justify the view that this diabetic terminal disorder had a multiple origin. In some cases we may conceive that the direct cause is the CO_2 poisoning the blood in lipæmia, a view warranted by the fatty infiltration of the liver found in the cases cited by Gamgee; that fat embolism from lipæmia may also be a cause in one class of cases, while pneumogastric nervous interference mainly by progressive degeneration either of centers or nerve tracts may account for another series.

A recent contribution against the acetonic idea, the preliminary communication by Dr. Rudolf von Jacksch,* may be cited as embodying the following conclusions regarding acetonuria in fever generally: First, a red color is produced in the urine by the addition of chloride of iron not only in diabetic coma, but during the course of diabetes without coma, and with great regularity in the eruptive stage of some acute exanthemata. Next come Siebold and Bradbury,† who state that instead of acetone it is acetoacetic ether that is found in diabetic urine, and setting forth the statements of Tichborne and Attfield, it seems by no means established that the chemists are certain of their tests for either the one or the other of these alleged glycosuric accompaniments.

Lubimoff‡ found "the inferior ganglion of the vagus-trunk atrophied" and abnormally rich in pigment," and Henrat§ once observed a tumor of the right vagus at the level of the root of the lung." Though in neither of these cases is there mention of coma, it is worth while to admit the strong probability of this aspect of

* Prager Medicinische Wochenschrifta, October 5, 1881.

† Martin's Chemists and Druggists' Bulletin, January, 1882.

‡ Virchow's Archiv, vol., lxi. p. 145.

§ Bull. de la Soc. Méd. de Reims, 1874, No. 13 (cited by Senator).

the disease not to be due to any single cause in all cases, but often to separate or conjoint causes, among which in my opinion, the CO_2 poisoing may rank first, fat embolism second, and pneumogastric failure third. On the matter of fat and glycogen-production from sugar and starch in the animal body an interesting chapter may be found in Foster's Physiology, recently published.*

Before dismissing the consideration of fatty infiltration it would be well to call attention to the statements of Beal, Frerichs, and others, that hepatic fat diminution is the rule in glycosuria, and that infiltration occurs in the corpulent, while fatty degeneration of the liver may occur as the result of cachexia and pulmonary phthisis.

As to the cause of the polydipsia, a view that at one time I regarded as original with myself alone, but which I find has been already urged, seems to satisfy the conditions, but the idea has not been properly worked out heretofore:

Setting all theory aside, the simple fact remains that there is an excess of sugar produced in the system in this disease; it is also undeniable that this sugar has an amylaceous origin. Now, if we take the chemical formulæ of starch and sugar, it is obvious that in the conversion of the one into the other *water is abstracted* from the system. Thus $C_{12}H_{10}O_{10}$ (starch) $2C_6H_{12}O_6H_2O$ (starch sugar) differ by $4H_2O$, and in the formation of two molecules of dextrose (Kekulé's term for starch sugar, Miller suggesting the word glucose as generic) from one molecule of starch four molecules of water disappear. The great thirst in cholera is known to be due to the loss of the watery constituents of the blood, and the diabetic thirst may be similary caused. That the great amount of fluid ingested in the latter disease should fail to assuage thirst is not to be wondered at when we consider that the sugar production goes on comparatively at a distance from the intestine in viscera and vessels not readily accesible or to be rapidly reached by draughts of water intended to resupply the abstracted serum. This process may be compared to the attempt to extinguish a fire in some inner room of a house by deluging the building and all the other apartments with water.

* Foster's Physiology, edited by Reichert, American edition, 1880, p. 590, et seq.

The new science of organogeny promises to give us clearer ideas of hepatic functions as well as broader views of man's position in the animal scale. Heretofore we have been compelled to rest content with the meager details set forth so voluminously by Richard Owen, but upon which Huxley improved immensely. Gegenbauer inaugurated with Hæckel an era in these matters, and today the apperance of Balfour's second volume on embryology, devoted more especially to vertebrates, is hailed by biological and pathological students everywhere with satisfaction.

Comparative cellular pathology and histology generally, in connection with a less narrow physiological chemistry, will achieve wonders in the future toward a better understanding of the life processes.

When we consider how much vagueness there is in the writings of those who have sought an explanation of the office of the liver, as well as of other structures in the animal economy, a vagueness prevailing in the works of such as Claude Bernard and Frerichs, is it not time to think that want of catholicity is at the bottom of our ignorance? Of course it is not to be expected that one or a score of investigators can cover a universe of comparative histological observations, but it is safe to assert that until organogeny has been thoroughly worked out in other vertebrate forms than man we are doomed to narrow-minded views of the significance of important viscera.

CONCLUSIONS.

Glycosuria is a more appropriate name for the disease known by the several designations diabetes mellitus, mellituria, etc., though glycæmia is the true pathological condition.

The literature is more voluminous than satisfactory, and consists mainly of repetitions of the older views.

Too many changes have been rung upon the necessity for abstinence from amylaceous diet, urine analysis, etc., and too little has been accomplished in the way of autopsies or a consideration of the probability of rational chemical treatment.

Statistics are lacking in establishing heredity and other matters as factors. Climatic influences do not seem to have been considered at all, and especially have the neurological bearings of the dis-

ease received too little attention except in the routine of "diabetic vaso-motor tracts."

Similarly the liability to the disease of sexes and at different ages is only apparently settled.

Too many uneliminated sources of error have been mixed up with the records as far as I have examined them.

The causes of glycosuria are multiple, hence the necessity for individualization in diagnosis and treatment.

The Bernardian view that "glycogenesis is a normal physiological phenomenon accompanying all the manifestations of life in animals and plants," deserves serious consideration in connection with accordant modern biological revelations. The tendency has been to consider the disease from the pathological stand-point alone. Nevertheless Bernard does not seem to have laid any stress upon the liver being simply the sugar-forming organ *par excellence* only, and that every organ, in fact every cell, possesses this function to a greater or less extent.

Comparative histology and physiological chemistry promise to become powerful aids in clearing up obscure points in disease, and inasmuch as we are to consider glycæmia from the physiological rather than the pathological stand-point, especially should the recent science of organogeny be cultivated.—*Boston Medical and Surgical Journal.*

A PROPOSED BILL TO REGULATE THE PRACTICE OF MEDICINE IN MICHIGAN. BY HENRY B. BAKER, M. D., LANSING, MICHIGAN. (Reprint from the Michigan Medical News, October 10, 1882.)

I submit herewith a copy of my proposed bill to regulate the practice of medicine, first published in the *Physician and Surgeon*, Ann Arbor, Mich., November, 1880, but here somewhat amended, attention having been given to some suggestions made by persons who have also given the matter careful thought.

Some have proposed that the State accept diplomas, as they are accepted by the State Board of Health of Illinois; but it

seems to me that the public can well take advantage of the natural rivalry of the colleges, and thus elevate the standard of medical education by a law which shall practically set each college in Michigan to watch each other one in this State, and all others whose graduates shall practice here. Every college would have a greater inducement than now to have its graduates creditable to it; because some of its graduated would be publicly tested and compared with those of other colleges.

Objection has been made that by this bill the great body of physicians in the State would have no voice in the proposed examining board. To this it may be replied that they have no voice now; and that this bill is not drawn for the especial and exclusive benefit of physicians, but is from the standpoint of one endeavoring to act for the interests of the general public. It is believed that the public would have had protection long ago if it had not been for the unconquerable disagreements among medical practitioners. It is not probable that the several thousands of medical proctitioners in Michigan will soon agree upon a plan; because they include all shades of belief and all degrees of intelligence, from the "medicine man" up to the highest type of physician known. But if some such law as is here proposed shall be enacted and enforced for one generation, the next generation of physicians will probably be of a type fit to control the interests of the public in relation to the medical profession.

But while this bill was not drawn for its direct benefits to physicians, its author believes that, if enacted into law, it is likely to accomplish what all the foremost physicians have professed to seek, namely, the advancement of the standard of those who profess and practice medicine. Let any person who questions this study the nature of the examination proposed in section 9, and consider that it is to be participated in by representatives of colleges from which many of the leading physicians in this State graduated, that results of the examinations will become to a certain extent public property, and ask himself whether a majority of the persons now actually practicing medicine in this State were ever qualified to pass such an examination.

The bill does not propose to interfere with any person now practicing in Michigan; but it proposes that, after the act passes,

no unqualified person shall begin to practice medicine in this State. My view is that by such a regulation, the number of ignorant doctors would soon be greatly lessened, and the dignity and honor of the medical profession greatly promoted; and this implies greatly increased safety of human life.

THE PROPOSED BILL.

SECTION 1. *The people of the State of Michigan enact*, That, from and after the time when this act shall take effect, no person shall begin the practice of medicine or of any branch or department thereof (except dentistry), or profess to begin the practice thereof, in this State, without first exhibiting evidence of qualifications for such profession in accordance with the provisions of this act. In this section, the term "begin the practice of medicine in this State," shall not apply to any person who at the time of the passage of this act is actually practicing medicine in this State; *provided*, that such person shall have registered as a practicing physician, as provided in this act.

SECTION 2. A State Board of Medical Examiners is hereby constituted as follows: The faculty of each legally-constituted and reputable medical college in this State, authorized by law to confer the degree of Doctor of Medicine, and actually existing and teaching as such a college, shall biennially name one member, the Superintendent of Public Instruction shall biennially name one member, and the State Board of Health shall biennially name one member; of the persons thus named in the first instance, six shall be appointed by the Governor with the advice and consent of the Senate, and when duly qualified, and when their oaths of office shall have been filed in the office of the Secretary of State at Lansing, they shall organize as a State Board of Examiners, and shall elect from their number a president, a secretary, and such other officers as their organization may require, and shall adopt and publish rules for procedure. *Provided*; that the failure of any college, or of all the colleges, to name a candidate for membership shall not cause a failure to organize or continue the Board; but the Governor or the Governor and Senate shall appoint the six members in the first instance, and two members biennially thereafter, and those actually nominated,

appointed and legally qualified, shall organize and perform all the duties of the State Board of Medical Examiners; *Provided* further, that no teacher, professor, lecturer, or officer of any of the before-mentioned colleges, shall be eligible to membership except as a representative to the college to which he belongs. Any vacancy in the Board may be filled, until the next regular session of the legislature, by the Governor.

SECTION 3. The term of office of each member first appointed shall be decided by lot, so that the term of two members shall expire every two years; and the term of office of each member appointed thereafter shall be six years.

SECTION 4. It shall be the duty of the State Board of Medical Examiners to organize as a Board immediately after this act takes effect, and proceed at once to prepare plans for a record-book for the use of the county clerks, blank forms for returns by the county clerks to the State Board of Medical Examiners, and such other blanks, circulars, instructions, etc., as may be necessary to carry this act into effect in the first instance, and with a view to its continuance, and to cause such record-books, blank forms, and circulars to be made by the State printers and binders, and to cause to be given to the Board of State Auditors, for audit and payment out of the general fund, bills for such printing and binding, duly certified by the State printers and binders and by the Secretary of the State Board of Medical Examiners.

SECTION 5. The expenses of the State Board of Medical Examiners, and the compensation of its members, shall be paid out of money collected by the Board from the candidates examined, in accordance with section 6 of this act; *Provided*, that the expenses of starting the work of registration of physicians shall be paid as specified in section 4 of this act.

SECTION 6. Each candidate for examination shall pay to the Board or its treasurer, the sum of —— dollars.

SECTION 7. The State Board of Medical Examiners shall keep a record of all examinations made by it, which record shall include statements of items requisite for identification of the person examined; such as the name, age, sex, color, height, color of hair, color of eyes, and other items if necessary; the names

of the examiners, specifying the one who examined each candidate in each subject, the subjects in which each candidate passed successfully, those in which he failed to pass, and his standing in each subject.

SECTION 8. In each year the State Board of Medical Examiners shall make a report to the Governor, which report shall include accounts of receipts and expenditures by the Board, statements of the number of candidates examined, the number and names of those passed and the number rejected, copies of the questions asked—which shall not all be the same in any two years—and copies of rules and regulations of the Board of Examiners; also the number of registered practitioners in each county, as reported to the Board by the county clerks.

SECTION 9. It shall be the duty of the State Board of Medical Examiners to examine each candidate for the practice of medicine or of any branch of the medical practice, as to proficiency in the English language and in the sciences of anatomy, phisiology, pathology, ætiology, chemistry and toxicology, as follows: Relative to the English language, the examination of each candidate shall be such as to ascertain whether the candidate has sufficient intelligence and education to enable him to read and write understandingly, accurately and logically, on such topics as are likely to arise in the course of his studies and in his relations with those who will fill his prescriptions, act as nurses, be his patrons, or officially consider his testimony in court. Relative to anatomy the examination shall be such as to ascertain whether the candidate has sufficient knowledge of the subject to enable him or her to explain the nature and relative position of the different structures in any part of the body, with reference to an injury, surgical operation, or other practical question connected with any of the several branches of medical practice. With reference to physiology, the examination shall be such as to ascertain whether the candidate is able to explain the normal function of each important organ in the human body, so far as the same is known and established in science. With reference to pathology, the examination shall be such as to ascertain whether the candidate is able to explain to one familiar to the science the

usual changes which occur in the structures and functions of the different organs, systems and parts of the human body in each of the common diseases. The examination in ætiology shall extend to what is known of the causes of the principal diseases which prevail in this State. The examination in chemistry shall include tests of the candidate's knowledge of the characters of acids, bases, alkaloids, alcohols and ethers, the reactions which occur under given circumstances between different chemicals or substances used as medicines, the chemistry of the blood and other fluids and solids of the human body, the proximate analysis of urine, the normal composition of cow's milk, and the chemistry of foods, nutrients and drinks. The examination in toxicology shall be sufficient to indicate the candidate's knowledge of the most common poisons, the nature and appearance of each, the common sources of each, the effects upon the healthy human being, poisonous and fatal doses of each poison, tests for poisons, and the chemical and household antidotes for the poisons. In each of these examinations questions upon which only opinions can be expressed shall not be asked; but in examinations in the English language the questions shall be restricted to established usage, and in the sciences they shall be restricted to established and demonstrable knowledge, accepted as such by those who teach those sciences.

SECTION 10. The State Board of Medical Examiners shall grant to candidates who pass a satisfactory examination in the several subjects required by section 9 of this act, a certificate, under the seal of the Board, stating when they were examined and in what subjects they passed an examination. Provided that the Board may decline to examine or to grant a certificate to any candidate whose moral character is bad.

SECTION 11. It shall be the duty of the clerk of each county in this State to receive the books, instructions, blank forms for returns, etc., prepared in accordance with section 4 of this act; to make and keep a record of all physicians entitled to be recorded under this act; and to report annually to the State Board of Medical Examiners, at Lansing, the names, post-office addresses, etc., of physicians recorded during the year, and such

other facts as are required in the instructions of the State Board of Medical Examiners, in order to fulfill the intent of this act.

SECTION 12. Any person who at the time of the passage of this act is actually practicing as a physician in this State, may, at any time within ——— months after this act shall take effect, apply to the clerk of the county in which he resides, to be recorded as a physician, in manner as follows: The application shall be on a blank prepared by the State Board of Medical Examiners, and supplied by the county clerk, and shall specify the time and place of such practice, the "school," pathy, specialty, or system of therapeutics or other branch of medicine practiced, the time and place of graduation as a doctor of medicine, the age, sex, color, place of residence and post-office address of the applicant, and such other facts as the State Board of Medical Examiners shall deem important for purposes of identification or to be placed upon record, and shall provide for in the blank forms or instructions prepared by such State Board.

SECTION 13. Upon the receipt of an application as specified in section 12, duly signed and sworn to by the applicant, and attested by two witnesses before some person known to the county clerk to be authorized to administer such oaths, the county clerk shall make the record contenplated by this act; *provided* such sworn application shall show that the applicant has practiced medicine, as specified in section 12, for the time and as otherwise required by this act, in order to authorize a person to practice medicine in this State; and *provided* further, that the application shall reach the county clerk within ——— months after this act takes effect. A practitioner concerning whom such record is made, shall be considered a legally-registered practitioner of medicine in that county.

SECTION 14. At any time after this act shall take effect, upon receipt of a certificate issued by the State Board of Medical Examiners, stating that the applicant has passed the examination required to be made by the Board, together with an application similar to that specified in sections 12 and 13, including also a similarly sworn and attested statement that the applicant is the same person examined, and to whom the certificate was issued,

the county clerk shall make the record of the applicant as a practitioner of medicine, and such practitioner shall be authorized to practice medicine in that county.

SECTION 15. In case a practitioner removes from one county to another, it shall be the duty of the practitioner to place upon record with the clerk in the county from and the county to which he removes, his correct post-office address, and to cause a certified copy of the original record to be made and recorded as specified in this section. A practitioner may be recorded in as many counties as he pleases, but his post-office address and residence must, in each case, be specified. Upon application, together with a copy of the record of himself as a practitioner, certified by the clerk of a county to be an accurate and complete copy of the original record, together with a sworn and attested statement by the applicant that he is the person described in the original record, and that he intends to practice medicine within the county in which he thus applies and other than that in which the record was first made, the clerk of the county shall make and keep a record, which shall include the first record, and such other facts as the State Board of Examiners shall specify in its instructions.

SECTION 16. A certified copy of the record of any practitioner may be obtained by any person from the county clerk upon payment of the proper or the usual fee for such service.

SECTION 17. No person who practices medicine, surgery or midwifery, in any of their branches (except dentistry), shall be able in any of the courts of this State to collect pay for professional services rendered subsequently to the time stated for this abt to go into effect, unless he or she was, at the time such professional services were rendered, duly registered as a medical practitioner according to the several provisions of this act.

SECTION 18. Whoever violates a provision of this act shall forfeit a sum not exceeding ——— dollars. It shall be unlawful for any person to practice, or profess to practice medicine, surgery, obstetrics, or any art of healing, or treatment of the sick (except dentistry) or receive pay for practicing in this State, except there shall be in the office of the clerk of the county in which the practice is performed, a record of such person as a

practitioner, in accordance with the several sections of this act; and if any such person who has not complied with this act, and who has not been thus authorized, shall practice or profess to practice medicine, surgery, or the art of healing, or any of their branches, whether of therapeutics, obstetrics, surgery, or any other department thereof (except dentistry), in this State, he or she shall, be deemed guilty of a misdemeanor, and on conviction thereof, shall be liable to a penalty in any sum not exceeding ——— dollars, and to imprisonment not exceeding ——— years.

SECTION 19. It shall be the duty of the State Board of Health, and of the health officer and local board of health in each township, city and village, to co-operate with the State Board of Medical Examiners, which is hereby charged with the duty of securing the fulfillment of the requirements of this act.

SECTION 20. The Board of State Auditors shall, if required, provide and furnish office-room at Lansing for the State Board of Medical Examiners.

THE VOMITING OF PREGNANCY. Read before the Philadelphia County Medical Society, September 13, 1882. BY WILLIAM B. ATKINSON, M.D.

Perhaps no condition of the pregnant woman is so full of annoyance, and at times so liable to lead to disastrous consequences, as the nausea which occurs particularly in the early months. Totally absent with some, with others it becomes a source of distress and danger, ceasing only with the expulsion of the fœtus or the death of the patient.

While the latter extreme is very rare, the constant spitting, nausea, or vomiting is frequently the accompaniment of a pregnancy, rendering the life of the woman a burden, and she only obtains a certain degree of comfort when, under the influence of anodynes, sleep secures for her a respite.

The limits of an introductory paper will not permit of any extended remarks beyond the strict line marked out by your busi-

ness committee,—"The Prevention and Treatment of the Vomiting of Pregnancy."

Now, in order that we may be prepared to treat or prevent a disease, it is eminently necessary that we should understand its cause, its real nature. Undoubtedly this condition results from two causes. In the early stages, the nausea, etc., are due to sympathetic disturbance of the stomach. Later, we have added direct pressure upon and interference with the functions of that viscus.

Now, these causes act with greater or less power as they occur in a patient with an irritable stomach, one prone to be disturbed by the slightest irregularities in food or digestion, or in one who has an ostrich-like power which enables her to load the stomach and carry through to the bowels matters which can only be partially digested, and must eventually pass away as foreign bodies.

With the hope of making pregnancy so comfortable that the ordinary objection to this condition on the part of the woman may be greatly lessened, the entire prevention of nausea and vomiting has been proposed and sought for by many obstetricians.

We must not forget at this point that in earlier days, and even now to a limited extent, it was believed that a sick pregnancy was a healthy one, and many practitioners, when these symptoms were absent, endeavored to imitate them by the employment of ipecacuanha and similar drugs.

It is difficult to understand how to proceed to prevent a condition which has not presented itself, and which may never occur. For we find in practice that a large number of women never exhibitthe slightest nausea in any of their pregnancies and many others suffer so little that it is deemed of no moment.

We may, indeed, having other reasons to regard the woman as pregnant, advise her to avoid carefully all articles of food which are likely to give rise to irritable stomach, and also to observe care as to the regularity of her meals and habits. Beyond this we have no indications by which to be guided. The treatment of this trouble may then be considered under the heads of its relief when present, and efforts to prevent its return.

In the milder cases it is doubtful how much of the benefit is

due to the remedy, and how much to the course of nature, in which the trouble would disappear spontaneously.

Many of the so-called cures which are so highly vaunted owe their supposed efficacy, in the successful cases, to the fact that little was needed to quiet an irritated stomach, irritated, perhaps, by carelessness or over-indulgence, which was intensified by the condition of the patient. It is only under this view that we can understand the wonderful effects of remedies as diverse as their names.

Therefore we may expect, and almost invariably obtain, relief in the great majority of cases from the use of sedatives and narcotics, as the bromides, chloral, morphia, carbonic acid water; from alkalies; from bitters, by their tonic action on the stomach, as gentian, calumba, quassia, nux vomica, etc.; from stimulants, as brandy, aromatic spirits of ammonia, champagne, the latter acting both by its stimulating quality and by the carbonic acid; from care in diet, carelessness in which frequently produces the earliest symptoms; from hygiene, change of locality, scenery, and occupation.

Those of us who attended the lectures of the late Prof. Charles D. Meigs can recall the convincing manner in which he showed us how to combat this trouble, by requiring the patient to take a cup of tea and a piece of toast while yet in bed, only rising sufficiently to rest upon the elbow while eating, and then to resume the recumbent position until the stomach had time to acquire tone to enable her to arise without the nausea.

It is from these trifling cases that we have constantly heralded the wonderful benefits to be obtained by the use of certain remedies, which soon lose their hold on the profession, and are only recalled as a curiosity in the literature of the medical art.

As such cases are of very frequent occurrence, and demand treatmant, we may mention those remedies which have proved most successful. Thus we have prussic acid in small doses; aconite of which the adminstration of a few drops of the tincture has been found of great benefit; the use of horseradish scraped fine, moistened with vinegar; arsenic, which is with many a favorite remedy; atropia or belladonna, combined with morphia; bismuth, the sub-nitrate, or, as preferred by some, the phosphate;

calumba, highly extolled by Bartholow and others; carbolic acid, adminstered in drop doses; the oxalate of cerium, which at one time was regarded as a specific in these cases; chloral, which is usually prompt, and is best given in the form of an enema; chloroform and ether, either in small doses or by inhalation; the latter has proved useful when sprayed upon the spine; creasote, one of the earliest remedies; sulphate of copper, gr. iv. to water ℥j, five or six drops at a dose; hyoscyamia, which is claimed as effectual when all else has failed; iodine; ipecacuanha, which has recently been reported on by several observers, given in drop doses of the wine in a teaspoonful of water, repeated every hour; pepsin, lactopeptin, and their compounds; nux vomica, five to ten drops of the tincture, and recommended by Bartholow where the nausea is great, with little vomiting, in drop doses; the bromides of potassium and sodium, used by Busey in doses of thirty to sixty grains, dissolved in beef-tea, with the addition of brandy and laudanum, if required by the symptoms, and thrown into the rectum every four hours. Friedrich is tempted to regard the bromide of potassium as a specific in one to two grain doses daily.

Recently we have on most excellent authority, a preparation made of the inner coating of the gizzard of the chicken, dried and reduced to an impalpable powder. In our hands this has frequently acted with great promptness and efficiency. While we may readily, and generally do, succeed in obtaining positive relief for our patients by the employment of some one or more of the above remedies, yet we occasionally encounter a case which obstinately refuses to yield to any remedy by the mouth, everything being rejected almost as soon as it reaches the stomach.

In these instances the happiest results frequently follow medication by the rectum. Especially do we find this to obtain with chloral, which we have known to act speedily and pleasantly in a number of instances. Perhaps a better plan is the use of chloral, morphia, and belladonna or atropia, combined in a mucilage or in the form of a suppository. In several cases we have thus obtained a tolerance of food by the stomach, and thus we have relieved a threatened death by starvation.

In other cases we have obtained even better results by direct

contact of these remedies with the os, and even within the cervix of the uterus.

In one case where, owing to the animal instincts of the husband, the nausea and vomiting were constantly reproduced, we each time succeeded in speedily checking it by passing a suppository of morphia, belladonna, and hyoscyamus up to the os, and keeping it closely applied.

Tanner employs suppositories made of belladona, gr. iij; hyoscyamus, gr. x; and iodide of lead, gr. viiss.

Injections, both rectal and vaginal, are advocated by many, and Dr. Greene has succeeded with warm olive oil, after failing with warm water. Cold to the epigastrium, small pieces of ce swallowed or passed into the rectum or vagina, have proved serviceable.

As might be expected electricity has its advocates, and Gaillard Thomas esteems it higher than any other remedy. A broad, flat electrode, made by stitching a flat sponge to sheet rubber, he fixes by means of adhesive plaster on the epigastrium, and a similar one under the spine, the patient lying on her back. A gentle current is passed, and continued for ten or even twenty-four hours.

Da Venezia, in a similar case, after all else had failed, used a faradic current of moderate strength, one rheophore being applied to the side of the neck along the vagus, the other to the epigastrium. The patient was relieved at once, and after the fourth application was cured.

J. Marion Sims employs caustic to the os, even when the parts appear perfectly healthy. He claims the best results from this method.

It would appear that this treatment is that which in obstinate cases promises the best results. Especially is it indicated when an examination reveals erosion or other disease of the os uteri. Originally, the sole dependence was upon upon nitrate of silver, but equally good results are obtained by the glycerole of iodine.

Tannin, carbolic acid, in short a great variety of remedies capable of relieving engorgement, erosion, or whatever evil condition may be present, have been found to act promptly in relieving the nausea, etc.

From the remarks of Dr. Sims and from the results in general practice it would appear as though all that is required is a means of producing an impression of a positive nature at the real seat of the affection, the os uteri. Hence we find severe cases are frequently at once terminated by ordinary anodyne or astringent injections, applied so as surely to produce their effect upon the os uteri.

While there is no doubt as to the safety of these applications properly employed, it is much to be questioned whether the same may be said of the plan proposed and carried out by some practitioners abroad,—that is, the dilatation of the os with the finger. No doubt such a method would at once relieve the nausea, but at the same time it might be anticipated as extremely likely to result in an abortion. For this reason I would hesitate as to its employment until every other remedy had failed, and the question had arisen whether we should not sacrifice the child to save the mother.

I earnestly believe that the question of premature delivery will rarely, if ever, occur when the treatment which I have so roughly sketched has been properly employed.

In this connection we may allude to the cases, though rare, where the husband has been the victim of nausea, while the pregnant wife was enjoying her usual health. Here we certainly cannot regard it as the result of sympathy between the womb and the stomach.

Before closing the subject of treatment I may mention that Pinard obtained immediate relief in several obstinate cases by the employment of inhalations of oxygen. I am not aware that it has been tried in this country.

A valuable aid, by allowing complete rest for the stomach, is the employment of rectal alimentation. Dr. H. F. Campbell has employed this plan in a number of instances, and with most gratifying results. Twice each day he injects very slowly and gently about eight ounces of beef-tea or some similar nutritious fluid. The advantages are complete rest for the stomach while nutrition is readily maintained. In the intervals between the injections a full goblet of water not quite cold was twice given, so as to supply the requisite amount of fluid.

In conclusion, permit me to sum up what I think is the duty of the practitioner in these cases:

The most complete rest of body and mind.

The avoidance of all forms of diet save those of easy digestion and assimilation.

The relief of the early symptoms by some one of the articles mentioned under the head of medication. Unless prompt relief is obtained, the use of chloral, morphia, belladonna, or hyoscyamus, or their combination, by the rectum or by the vagina. In the latter case it is important that we should first carefully cleanse away the discharge usually found clinging to the os, and maintain them there by the usual methods.

This failing, apply to the os and cervix, if need be, the glycerole of iodine or the nitrate of silver, and follow this by an application of the anodynes, as before.

If the vomiting is now great, abandon the stomach as a depot for food, and employ rectal alimentation solely. In each injection we may include with the nutrient chloral to aid in procuring complete rest.

To relieve the intense thirst which is generally present, we may allow the patient to swallow at intervals small lumps of ice, or to drink iced carbonic acid water, which is now so readily obtained from the siphon. Of course, just sufficient of this should be taken to relieve the throat at the moment.

I do not consider the dire alternative of induced abortion, as such a procedure rarely becomes necessary, and should only be employed after the most careful deliberation, and after a council of physicians have decided it to be imperative.—*Philadelphia Medical Times.*

SEX AND RACE.—In most European nations the proportions of male births to female is as 105 to 100. Among the Jews, however, the proportion rises to 110 or 120 to 100. This is thought to be due to the fact that marriage is earlier among the Jews.—*Medical Record.*

Items.

MEDICAL NEWS.

THE Fifteenth edition of the United States Dispensatory will be ready in January, 1883. The editors are Dr. H. B. Wood, Professor of Materia Medica and Therapeutics in the University of Pennsylvania, Joseph P. Remington, Professor of Pharmacy, and Samuel B. Sadtler, Professor of Chemistry, in the College of Pharmacy, Philadelphia. The revision has occupied about three years, and has been in all respects most thorough and complete—embracing the most recent discoveries in materia medica, pharmacy, chemistry and therapeutics.

The relation of the work to the United States Pharmacopœia will be fully maintained, whilst the encyclopœdic character of the Dispensatory will be developed to the greatest extent. The new pharmacopœia will be in all its parts fully expounded and discussed, and the most recent non-officinal medicines, as well as those long out of date, will be carefully considered in the second part of the work.

THE Congress of Austrian Archæologists, recently in session at Salzburg, was the scene of an interesting discussion of the human jaw-bone, in which the proportions of a giant were found associated with the teeth of a child, which was dug out, at Stamberg, in Moravia, from under a formation containing bones of the reindeer, snow-owl, cave-bear, and other Arctic animals.—*Popular Science Monthly.*

POPULARITY OF HYPODERMIC SYRINGES.—"There are one hundred hypodermic syringes sold now for each one that found a purchaser a few years ago," said a dealer in surgical instruments,

to a New York *Sun* reporter. "People have discovered that they are not only of great service in the alleviation of extreme pain, but that they afford a convenient sort of respectable intoxication."

SINCE the massacre in Alexandria, Egypt has been recommended as a health resort. Dr. Edith Pechey thinks that phthisical and rheumatic patients will be greatly benefited, if they are careful in guarding themselves against the night and morning chills, in taking trips on the Nile.

AT the end of 1881 there were 2,218 registered insane persons in New South Wales, or 119 more than the previous year, and 36 in excess of the average yearly increase. The percentage of deaths for the year was 5.46, the lowest since 1865.—*Austral. Med. Gazette.*

HOMŒOPATHY IN THE COOK COUNTY HOSPITAL, CHICAGO.—Under recent rules, one-fourth of all patients on the medical side, and one-fifth of the surgical cases are placed under the care of the homœopathic internes. No consultations allowed.—*Medical Record.*

MARRIAGE LAWS.—Among the Omahas and Poncas, a man can marry his brother's widow. Widows, however, must wait four years before re-marrying. But, if a widower remains single for two, three, or four years, he must remain so forever.

SOME enterprising dentists, among them Drs. Brophy and Talbot, are about starting in Chicago a Dental Infirmary, for the purpose of giving instruction to medical students, and of furnishing gratuitously to worthy poor their skillful services.

DR. T. DAVIS FITCH has much improved in health. He is now attending to his practice, as before his apoplexy, and conducts successfully his gynæcological clinic at the Woman's Medical College every Saturday afternoon.

AT Philadelphia, October 19, several explosions of sewer gas took place along Twentieth street, and the gas caught on fire. This may suggest either a new mode of constructing sewers or a new means for disinfecting them.

DR. HENRY T. BYFORD has safely returned from his bridal tour, and is again in active pursuit of his professional work. We congratulate him on his marriage, and hope he will add to the number of his illustrious name.

DR. JOHN D. M. CARR, whose death took place recently, has been for fifteen years a well-known physician of this city. In addition to being an excellent physician, he was an active and prominent Free Mason.

THE late epidemic of cholera in Japan caused 2,000 deaths in Yokohama alone. In Manilla, Philippine Islands, the mortality from the same cause numbered from 50 to 300 a day.—*Med. News.*

MR. W. H. RIDEING, in *Harper's Monthly* says that no occupation in the United States stands higher numerically, socially, or financially, than the medical profession.

A CASE of rupture of the stomach is reported in which a dose of lobelia was given to a patient of intemperate habit, by an irregular practitioner. The patient died without vomiting.

ALLUDING to the late troubles in the Cook County Hospital, the *Medical Record* says: "Between politics and homœopathy our Chicago brethren seem to have a hard time.

M. TARNIER of the Maternité, Paris, is the inventor of a baby-incubator which will do for the human race what the egg-incubator has done already for poultry.

MR. T. R. BAKER, in a paper "On the Permeability of the Linings of House Walls to Air," deprecates wall-paper and advocates the old-time whitewashed walls.

Dr. D. G. BRINTON, of Philadelphia, is publishing "The Chronicles of the Mayas," being the first volume of a "Library of Aboriginal American Literature."

THE celebrated author of the Treatise on Comparative Embryology, Prof. F. M. Balfour, lost his life July 19, while ascending the Alps, near Mt. Blanc.

SCARLET fever is widely disseminated through Chicago.

THE Chicago Dental Infirmary has just been licensed by the Secretary of State.

ONE hundred thousand dollars have been appropriated by Congress for the erection of an army and navy hospital at Hot Springs, Arkansas.

SAYS Blackmore: "The common lay mind hates the lawyer, as the lay body objects to the doctor, and the soul is timorous of the parson."

THE annual congress of the German Anthropological Society met at Frankfort, August 14, with five hundred members in attendance.

THE celebrated chemist, Friederich Woehler, Director of the Chemical Institute at Göttingen, died September 25, aged 82 years.

ANTHROPOLOGY.—What seems evident foot-prints of men have been found at Carson City, Nevada, in a Quarternary sandstone.

TWO hundred and sixty-seven medical works were published in Japan in the Japanese language in 1881.—*Med. News.*

THE State of Maine has recently elected Dr. Frederick Robie, Governor.

CLINICS.

MONDAY.

Eye and Ear Infirmary—1.15 to 2.15 p. m., Otological, by Dr. Schaefer; 2.15 to 3.30 p. m., Ophthalmological, Dr. Holmes.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes: 3 to 4 p. m., Diseases of the Chest, by Prof. Ross.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m., Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—1.15 to 2.25 p. m., Otological, by Dr. Schaefer; 2.15 to 3.30. p. m., Ophthalmological, Dr. Holmes.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.
College of Physicians and Surgeons—2 p. m., Medical, by Prof. S. A. McWilliams; 3 p. m., Surgical, by Prof. R. L. Rea.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
College of Physicians and Surgeons—2 p. m., Diseases of the Chest, by Prof. S. A. McWilliams; 3 p. m., Gynæcological, by Prof. A. Reeves Jackson.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, at the South Side Dispensary and at the West Side Dispensary.